

% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	29.1	60.6	10.3	

ſ	SIEVE	PERCENT	SPEC.*	PASS?
	SIZE	FINER	PERCENT	(X=NO)
	1.5 in. .75 in. .2 in. #4 #10 #20 #40 #60 #100 #200	100.0 97.2 91.9 70.9 63.4 62.2 47.1 22.0 15.2 10.3		

Soil Description  Well-graded sand with silt and gravel.  2.3% finer than 0.02mm.  Non Frost Susceptible.						
PL= NP	Atterberg Limits LL= NV	PI=				
D <sub>85</sub> = 4.97 D <sub>30</sub> = 0.302 C <sub>u</sub> = 9.74	Coefficients D <sub>60</sub> = 0.710 D <sub>15</sub> = 0.143 C <sub>C</sub> = 1.76	D <sub>50</sub> = 0.458 D <sub>10</sub> = 0.0729				
USCS= SW-SM	Classification AASHT	O=				
Remarks Natural Moisture 3.9%.						

Sample No.: 3b Location: Source of Sample: AP-14

Date: 2/26/01 Elev./Depth: 9.5-11.5

Client: U.S. Army Engineer District, Alaska

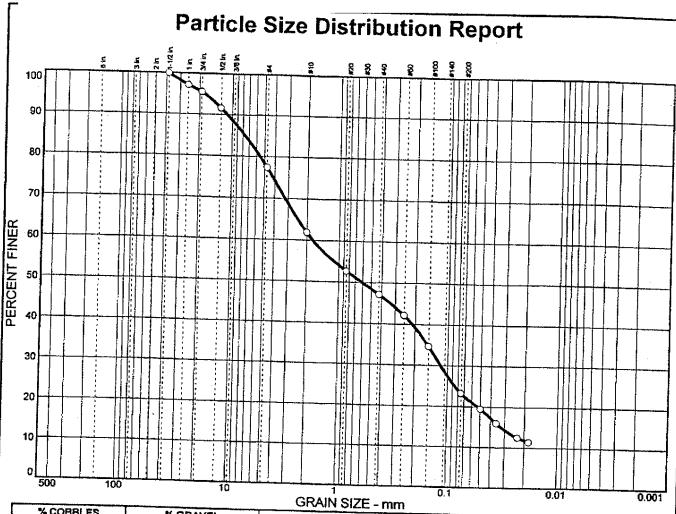
Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate 22

A.W. Murfitt Company



 % COBBLES
 % GRAVEL
 % SAND
 % SILT
 % CLAY

 0.0
 22.6
 54.2
 23.2

1	SIEVE	PERCENT	SPEC.	PASS?
	SIZE	FINER	PERCENT	(X=NO)
	1 in. 1 in. 75 in. .5 in. #44 #20 #40 #60 #100 #200	100.0 97.2 95.5 91.6 77.4 61.8 52.7 47.1 42.1 34.6 23.2		

Silty sand with 11.8% finer tha Frost Class F 2.	n 0.02mm.				
PL= NP	Atterberg Limits LL= NV	. PI=			
D <sub>85</sub> = 7.61 D <sub>30</sub> = 0.116 C <sub>u</sub> =	Coefficients D60= 1.76 D15= 0.0323 C <sub>c</sub> =	D <sub>50</sub> = 0.609 D <sub>10</sub> =			
USCS= SM	Classification AASHT	0=			
Remarks Natural Moisture 22.1%. Portions Of Fiber Board And Glass Present In Sample.					

Sample No.: 2 Location:

Source of Sample: AP-15

Date: 2/26/01 Elev./Depth: 4.5-6.5

A.W. Murfitt Company

(no specification provided)

Client: U.S. Army Engineer District, Alaska

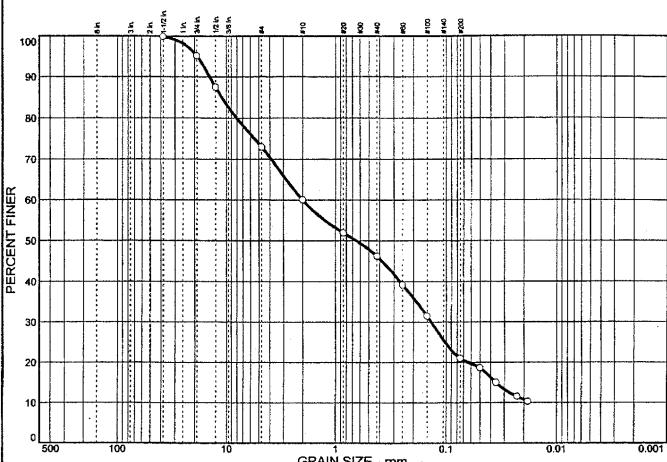
Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate





_	GIVAIN SIZE - IIIII				
	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
-[	0.0	27.0	52.0	21.0	

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
1.5 in. .75 in. 0.5 in. #40 #40 #60 #100 #200	100.0 95.2 87.5 73.0 60.0 51.9 46.2 39.2 31.5 21.0		

Soil Description				
Silty sand with g	gravel.			
10.7% finer than	0.02mm.	}		
Frost Class F 2.		į		
PL= NP	Atterberg Limits LL= NV	PI=		
D <sub>85</sub> = 11.1 D <sub>30</sub> = 0.137 C <sub>u</sub> =	Coefficients D <sub>60</sub> = 2.00 D <sub>15</sub> = 0.0360 C <sub>c</sub> =	D <sub>50</sub> = 0.653 D <sub>10</sub> =		
USCS= SM	Classification AASHT	-O=		
Remarks Natural Moisture 28.0%.				
***********				

Sample No.: 3 Location: Source of Sample: AP-15

**Date:** 2/26/01 **Elev./Depth:** 9.5-11.5

A.W. Murfitt Company

Client: U.S. Army Engineer District, Alaska

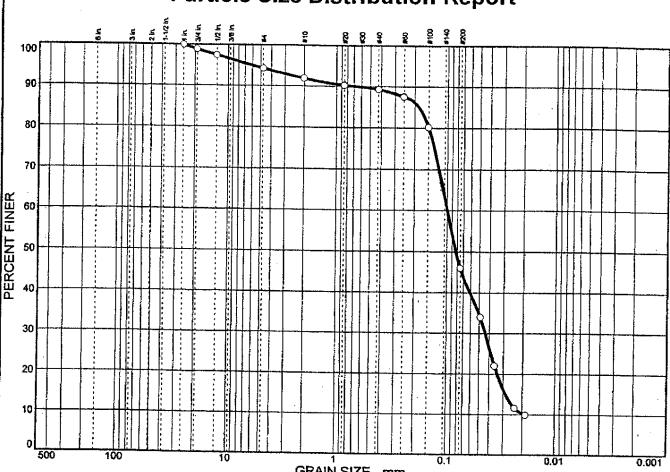
Project: Family Housing Upgrade (FTW230).

Fort Wainwright, Alaska

Project No: 01-369.08

Plate





GRAIN SIZE - mm % COBBLES % GRAVEL % SAND % SILT % CLAY 0.0 5.7 48.3 46.0

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X≂NO)
1 in. .75 in. .5 in. #10 #20 #40 #60 #100 #200	100.0 98.9 97.5 94.3 91.9 90.3 89.3 87.6 80.2 46.0		

	Soil Description			
Silty sand. 10.4% finer than Frost Class F 2.	0.02mm.			
PL= NP	Atterberg Limits LL= NV	Pi=		
D <sub>85</sub> = 0.182 D <sub>30</sub> = 0.0438 C <sub>u</sub> = 5.24	Coefficients D60= 0.1000 D15= 0.0286 Cc= 1.01	D <sub>50</sub> = 0.0825 D <sub>10</sub> = 0.0191		
USCS= SM	Classification AASHT	·O=		
Remarks Natural Moisture 11.9%. Portions Of Tin Cans And Glass In Sample.				

Sample No.: 2 Location:

Source of Sample: AP-16

Date: 2/26/01 Elev./Depth: 4.5-6.5

A.W. Murfitt Company

(no specification provided)

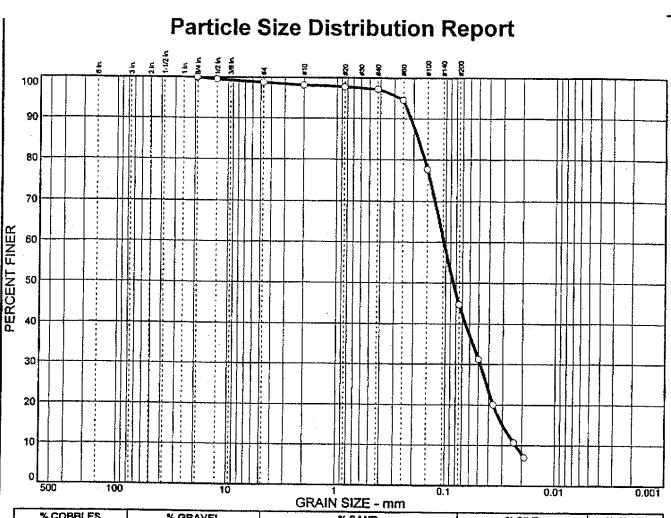
Client: U.S. Army Engineer District, Alaska

Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

**Plate** 



<del></del>				
% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	1.2	54.1	44.7	
				*****

SIEVE	PERCENT	SPEC."	PASS?
SIZE	FINER	PERCENT	(X=NO)
.75 in. .5 in. #4 #10 #20 #40 #60 #100 #200	100.0 99.6 98.8 98.2 97.8 97.3 94.6 77.7 44.7		

	Soil Description	
Silty sand.		
7.8% finer than (	).02mm.	•
Frost Class F 2.	• ,	
PL= NP	Atterberg Limits	PI=
111	In 3m 1 1 1	, I—
5	Coefficients	
D <sub>85</sub> = 0.182	$D_{60} = 0.104$	D <sub>50</sub> = 0.0850
$D_{30}^{2} = 0.0481$ $C_{11}^{2} = 4.59$	$D_{15} = 0.0300$ $C_{c} = 0.98$	$D_{10} = 0.0227$
O[]- 4.59	CC- 0.30	
	Classification	
USCS= SM	AASHT	0=
	Remarks	
Natural Moisture		
Organics Present	In Sample	

Sample No.: 3 Location: Source of Sample: AP-16

Date: 2/26/01 Elev./Depth: 9.5-11.5

A.W. Murfitt Company

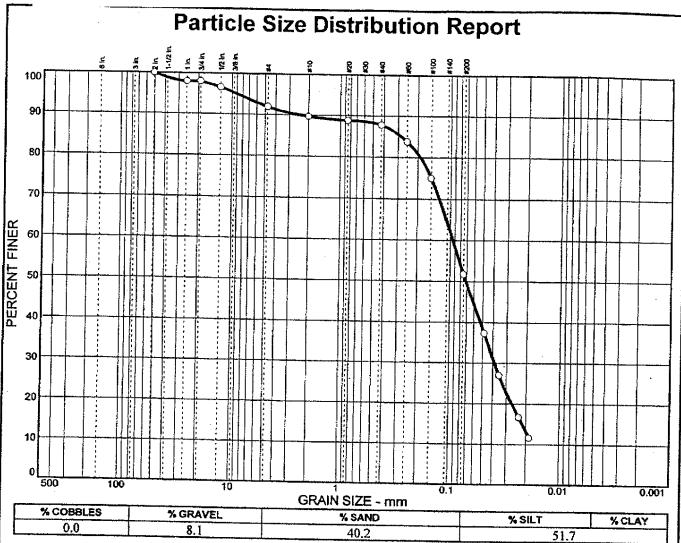
Client: U.S. Army Engineer District, Alaska

Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
2 in. 1 in. .75 in. .5 in. #4 #10 #40 #60 #100 #200	100.0 98.0 98.0 96.6 91.9 89.7 88.8 87.8 87.8 83.8 75.1		
* (no spe	cification provided	l)	

	Soil Description		
Sandy silt.			
13.2% finer than Frost Class F 4.	0.02mm.		
PL= NP	Atterberg Limits LL= NV	Pi=	
D <sub>85</sub> = 0.281 D <sub>30</sub> = 0.0389 C <sub>u</sub> =	Coefficients D <sub>60</sub> = 0.0946 D <sub>15</sub> = 0.0215 C <sub>c</sub> =	D <sub>50</sub> = 0.0713 D <sub>10</sub> =	
USCS= ML	Classification AASHT	O=	
Remarks Natural Moisture 16.5%.			

Sample No.: 2 Location:

Source of Sample: AP-17

Date: 2/26/01 Elev./Depth: 4.5-6.5

A.W. Murfitt Company

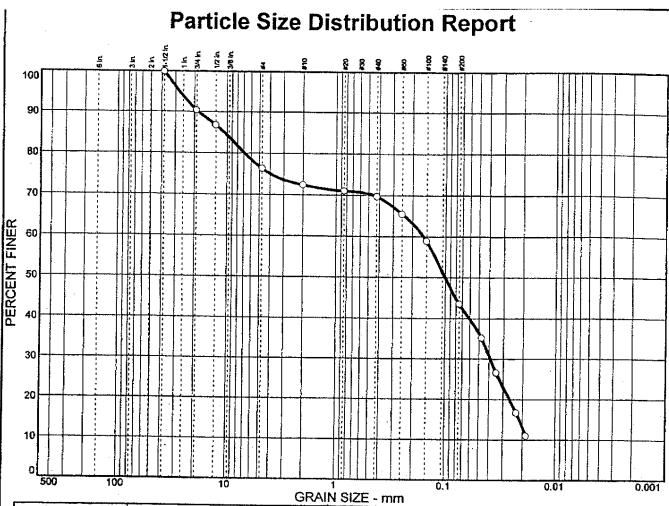
Client: U.S. Army Engineer District, Alaska

Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate



1	GIVAIN SIZE - IIIII				
1	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
	0.0	23.7	32.8	43.5	

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
1.5 in. .75 in. .5 in. #40 #40 #60 #100 #200	100.0 90.4 86.8 76.3 72.4 71.0 69.7 65.5 58.9 43.5		

	Soil Description	
Silty sand with g	gravel.	e e
12.9% finer than	0.02mm.	
Frost Class F 2.		•
PL= NP	Atterberg Limits LL= NV	Pl≕
D <sub>85</sub> = 10.6 D <sub>30</sub> = 0.0391 C <sub>u</sub> =	Coefficients D60= 0.160 D15= 0.0214 Cc=	D <sub>50</sub> = 0.101 D <sub>10</sub> =
USCS= SM	Classification AASHT	O=
	Remarks	
Natural Moisture		
Sticks And Glass	Present In Sample.	

Sample No.: 3
Location:

Source of Sample: AP-17

Date: 2/26/01

**Elev./Depth:** 9.5-11.5

A.W. Murfitt

(no specification provided)

Company

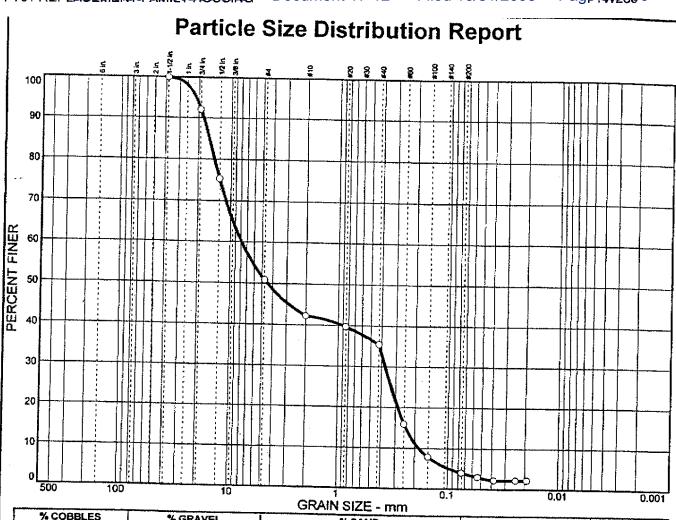
Client: U.S. Army Engineer District, Alaska

Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate



% COBBLES	* CD 11/51	CIVATOLE - IIIII		
0.0	% GRAVEL	% SAND	% SILT	% CLAY
0.0	49.2	46.8	4.0	

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
1.5 in. .75 in. .5 in. #10 #20 #40 #60 #100 #200	100.0 92.1 75.3 50.8 42.2 39.7 35.4 15.9 7.9 4.0		

Soil Description				
Poorly graded gra				
2.2% finer than 0		•		
Possibly Frost Su	sceptible.			
PL= NP	Atterberg Limits LL= NV	Pi=		
D <sub>85</sub> = 15.9 D <sub>30</sub> = 0.373 C <sub>u</sub> = 42.96	Coefficients D60= 7.88 D15= 0.241 Cc= 0.10	D <sub>50</sub> = 4.48 D <sub>10</sub> = 0.183		
Classification USCS= GP AASHTO=				
Remarks Natural Moisture 9.9%.				

Sample No.: 4b Location:

Source of Sample: AP-17

Date: 2/26/01 Elev./Depth: 14.5-16.5

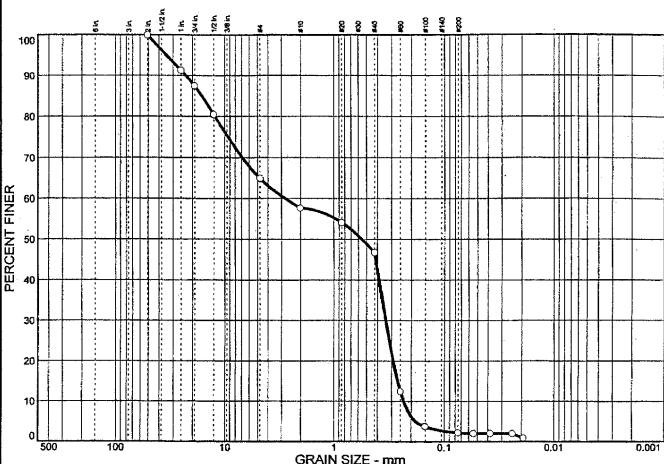
Client: U.S. Army Engineer District, Alaska Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

**Plate** 





Or Vally Size - Hall				
% COBBLES		% SAND	% SILT	% CLAY
0.0	35.1	62.7	2.2	

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
2 in. 1 in. 75 in. 5 in. #10 #20 #40 #60 #100 #200	100.0 91.3 87.5 80.5 64.9 57.6 54.1 46.7 12.5 3.8 2.2		

Poorly graded sa 1.1% finer than to Non Frost Susce	0.02mm.			
PL= NP	Atterberg Limits LL= NV	PI=		
D <sub>85</sub> = 16.3 D <sub>30</sub> = 0.339 C <sub>U</sub> = 11.91	Coefficients D60= 2.78 D15= 0.264 Cc= 0.18	D <sub>50</sub> = 0.553 D <sub>10</sub> = 0.233		
USCS= SP	Classification AASH1	「O≕		
Remarks Natural Moisture 2.0%.				

Sample No.: 3 Location:

Source of Sample: AP-18

Date: 2/26/01

Elev./Depth: 9.5-11.5

A.W. Murfitt Company

Client: U.S. Army Engineer District, Alaska

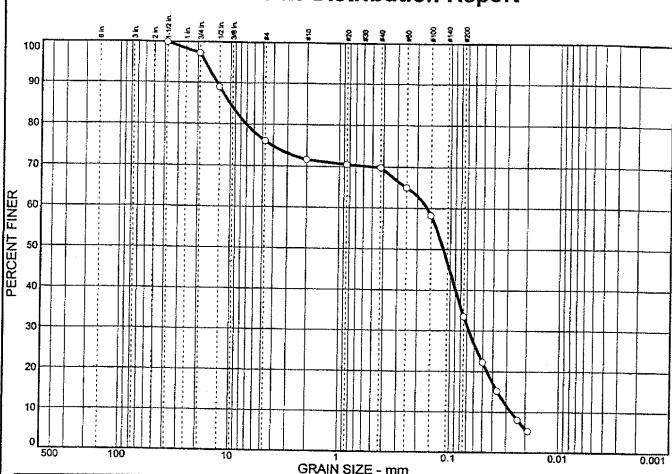
Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

**Plate** 





GIAM SIZE - IIIII)					
% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	
0.0	24.0	42.5	33.5	A OLA!	

SIEVE	PERCENT	SPEC."	PASS?
SIZE	FINER	PERCENT	(X≈NO)
1.5 in. .75 in. .5 in. #40 #20 #40 #60 #100 #200	100.0 97.3 89.0 76.0 71.6 70.5 69.8 65.0 58.2 33.5		

Soli Description Silty sand with gravel. 5.9% finer than 0.02mm. Frost Class S 2.					
PL= NP	Atterberg Limits LL= NV	PI=			
D <sub>85</sub> = 10.1 D <sub>30</sub> = 0.0672 C <sub>u</sub> = 6.02	Coefficients D <sub>60</sub> = 0.163 D <sub>15</sub> = 0.0361 C <sub>c</sub> = 1.03	D <sub>50</sub> = 0.116 D <sub>10</sub> = 0.0271			
USCS= SM	Classification AASHT	O=			
<u>Remarks</u> Natural Moisture 13.3%.					

Sample No.: 2 Location:

Source of Sample: AP-19

Date: 2/26/01 Elev./Depth: 4.5-6.5

A.W. Murfitt Company

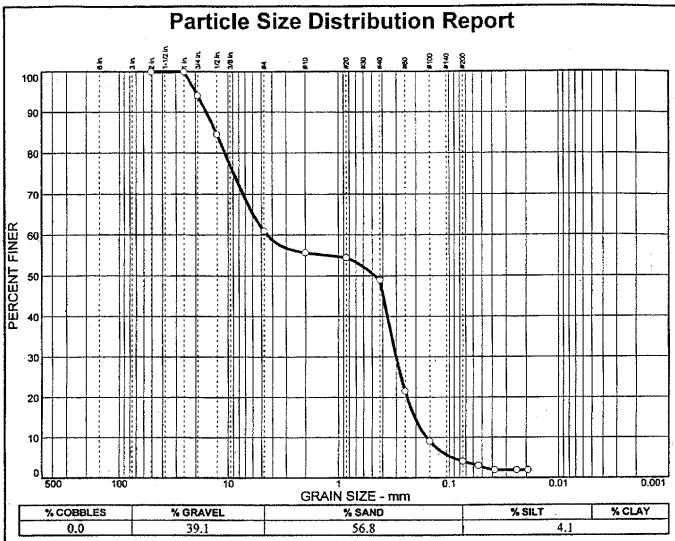
Client: U.S. Army Engineer District, Alaska

Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate



SIEVE	PERCENT	SPEC."	PASS?
SIZE	FINER	PERCENT	(X=NO)
2 in. 1 in. .75 in. .5 in. #4 #10 #20 #40 #100 #200	100.0 100.0 94.1 84.6 60.9 55.6 54.4 48.9 21.5 9.1 4.1		

1.9% finer than (	Soil Description  Poorly graded sand with gravel.  1.9% finer than 0.02mm.  Non Frost Susceptible.				
PL= NP	Atterberg Limits LL= NV	PI=			
D <sub>85</sub> = 12.9 D <sub>30</sub> = 0.302 C <sub>u</sub> = 27.90	<u>Coefficients</u> D <sub>60</sub> ≈ 4.45 D <sub>15</sub> = 0.204 C <sub>c</sub> = 0.13	D <sub>50</sub> = 0.472 D <sub>10</sub> = 0.160			
USCS= SP	Classification USCS= SP AASHTO≕				
Natural Moisture	<u>Remarks</u> Natural Moisture 2.9%.				
····					

Sample No.: 3 Location:

Source of Sample: AP-19

Date: 2/26/01

Elev./Depth: 9.5-11.5

A.W. Murfitt Company

Client: U.S. Army Engineer District, Alaska

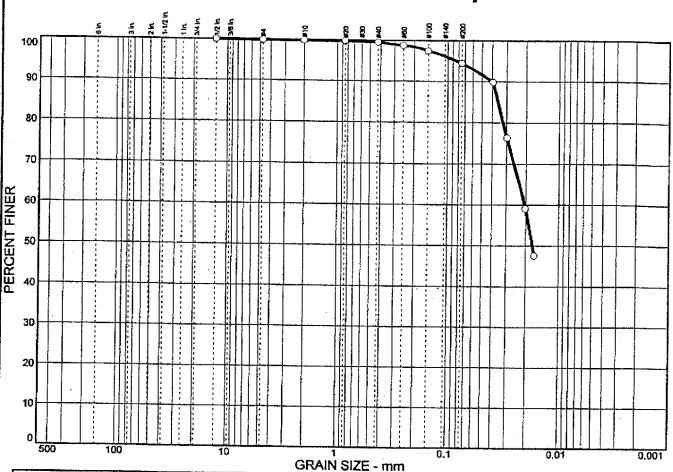
Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

**Plate** 





	SIEVE	PERCENT	SPEC."	PASS?
	SIZE	FINER	PERCENT	(X=NO)
	.5 in. #4 #10 #20 #40 #60 #100 #200	100.0 99.9 99.8 99.8 99.6 98.8 97.5 94.4		
L				

	Soil Description	
Silt.		
58.4% finer than	0.02mm.	
Frost Class F 4.		***
PL= NP	Atterberg Limits LL= NV	Pi=
D <sub>85</sub> = 0.0358 D <sub>30</sub> = C <sub>u</sub> =	Coefficients D60= 0.0206 D15= C <sub>c</sub> =	D <sub>50</sub> = 0.0174 D <sub>10</sub> =
USCS= ML	Classification AASHT	O=
Natural Moisture	Remarks : 34.3%.	
Sticks And Orga	nics Present In Sample	e.

\* (no specification provided)

Sample No.: 2 Location:

Source of Sample: AP-20

Date: 2/26/01 Elev./Depth: 5.0-7.0

A.W. Murfitt Company

Client: U.S. Army Engineer District, Alaska

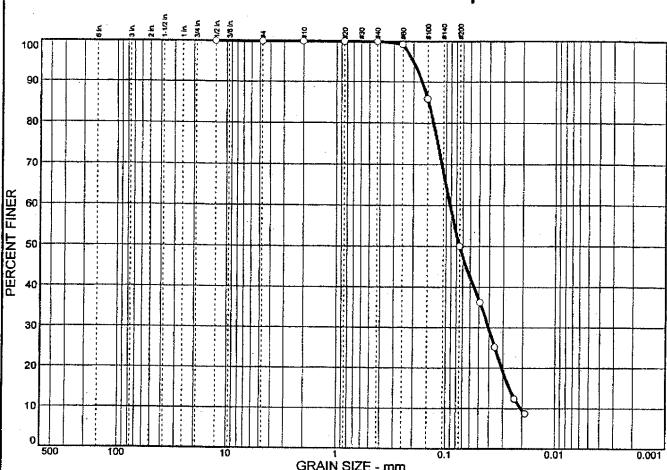
Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate





OT WITH OLD THE PARTY.					
% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	
0.0	0.0	50.0	50.0		

SIEVE	PERCENT	SPEC.	PASS?
SIZE	FINER	PERCENT	(X≃NO)
.50 in. #4 #10 #20 #40 #60 #100 #200	100.0 100.0 100.0 100.0 100.0 99.3 85.9 50.0	FERGEN	(X=NO)
	·		

Soil Description				
Sandy silt.				
9.6% finer than 0	).02mm.			
Frost Class F 4.				
PL= NP	Atterberg Limits LL= NV	PI=		
D <sub>85</sub> = 0.147 D <sub>30</sub> = 0.0408 C <sub>u</sub> = 4.47	Coefficients D60= 0.0920 D15= 0.0262 C <sub>C</sub> = 0.88	D <sub>50</sub> = 0.0750 D <sub>10</sub> = 0.0206		
USCS= MIL	Classification AASHTO	)=		
Remarks Natural Moisture 22.4%.				

Sample No.: 3 Location: Source of Sample: AP-20

Date: 2/26/01 Elev./Depth: 10.0-12.0

A.W. Murfitt Company

Client: U.S. Army Engineer District, Alaska

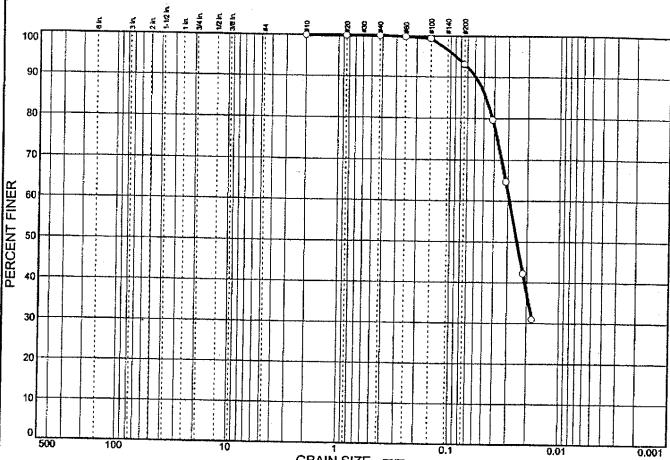
Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate





OVARY SIZE - TIME				
% COBBLES % GRAVEL	% SAND	% SILT	% CLAY	
00 00			ACLAT	
L 0.0 U.U	6.8	93.2		

<b></b>		T	<del></del>
SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#10 #20 #40 #60 #100 #200	100.0 100.0 100.0 99.8 99.4 93.2		

Silt	Soil Description	
37.3% finer than Frost Class F 4.	0.02mm.	
PL= NP	Atterberg Limits LL= NV	Pl≈
D <sub>85</sub> = 0.0480 D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = 0.0291 D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = 0.0247 D <sub>10</sub> =
USCS= ML	Classification AASHT	O=
Natural Moisture	<u>Remarks</u> 38.3%.	

Sample No.: 3
Location:

Source of Sample: AP-21

Date: 2/26/01 Elev./Depth: 9.5-11.5

A.W. Murfitt Company

Client: U.S. Army Engineer District, Alaska

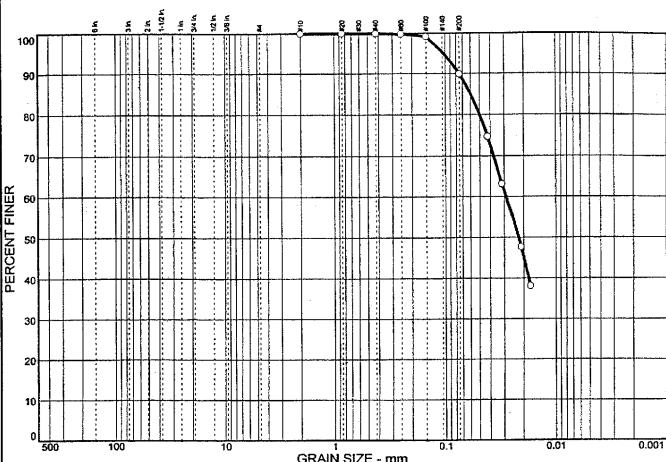
Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate





OIV WY OIZE - BANT				
% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	10.1	89.9	

SIEVE	PERCENT	SPEC."	PASS?
SIZE	FINER	PERCENT	(X=NO)
#10 #20 #40 #60 #100 #200	100.0 100.0 100.0 99.8 99.2 89.9		
			!

	Soil Description	
Silt. 44.9% finer than Frost Class F 4.	0.02mm.	
PL= NP	Atterberg Limits LL= NV	Pl=
D <sub>85</sub> = 0.0598 D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = 0.0290 D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = 0.0223 D <sub>10</sub> =
USCS= ML	Classification AASHT	O=
Natural Moisture	Remarks e 40.0%.	

Sample No.: 4 Location: Source of Sample: AP-21

Date: 2/26/01 Elev./Depth: 14.5-16.5

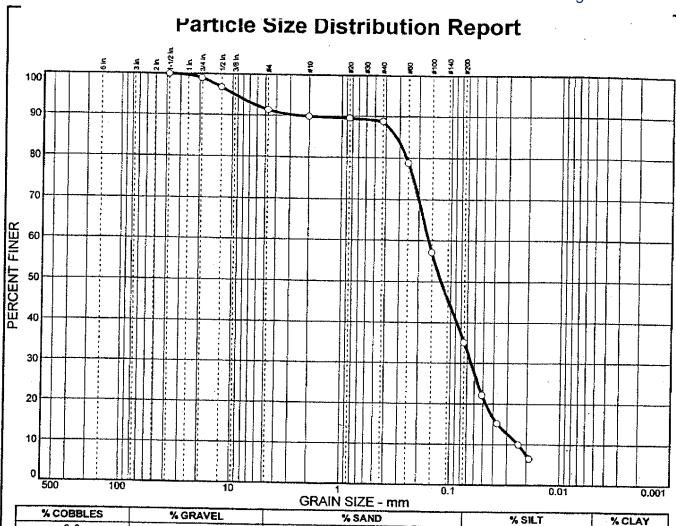
A.W. Murfitt Company Client: U.S. Army Engineer District, Alaska

Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369:08

Plate



M CORPLEO		OTO WIT CIZE - MILL		
% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	8.6	56.2	26.0	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
		30.2	33,2	

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X≃NO)
1.5 in. .75 in. .5 in. #4 #10 #20 #40 #60 #100 #200	100.0 99.0 96.8 91.4 89.8 89.5 88.8 78.8 57.1 35.2		

	Soil Description	
Silty sand. 7.3% finer than Frost Class F 2.	0.02mm.	
PL= NP	Atterberg Limits LL= NV	PI≔
D <sub>85</sub> = 0.321 D <sub>30</sub> = 0.0646 C <sub>u</sub> = 6.79	Coefficients D <sub>60</sub> = 0.161 D <sub>15</sub> = 0.0363 C <sub>c</sub> = 1.09	D <sub>50</sub> = 0.123 D <sub>10</sub> = 0.0237
USCS= SM	Classification AASHT	O=
Natural Moisture	<u>Remarks</u> : 10.4%.	
		·

Sample No.: 2 Location:

Source of Sample: AP-22

Date: 2/26/01 Elev./Depth: 4.5-6.5

A.W. Murfitt Company

Client: U.S. Army Engineer District, Alaska

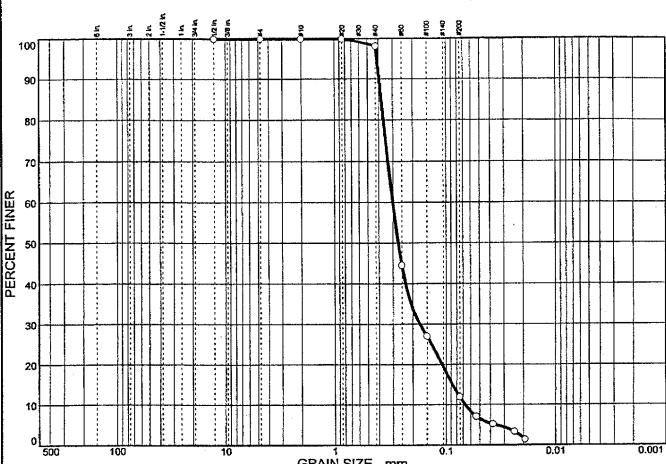
Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate





SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
.50 in. #4 #10 #20 #40 #60 #100 #200	100.0 99.9 99.9 99.9 98.2 44.5 27.0 11.9		

Poorly medad son	Soil Description  Poorly graded sand with silt.					
1.7% finer than 0.	the state of the s					
Non Frost Suscept		-				
PL= NP	Atterberg Limits	<u>s</u> PI=				
D <sub>85</sub> = 0.380 D <sub>30</sub> = 0.174 C <sub>u</sub> = 4.49	Coefficients D <sub>60</sub> = 0.301 D <sub>15</sub> = 0.0875 C <sub>c</sub> = 1.49	D <sub>50</sub> = 0.269 D <sub>10</sub> = 0.0672				
USCS= SP-SM	Classification AASH	TO=				
Remarks Natural Moisture 7.3%.						
	· · · · · · · · · · · · · · · · · · ·					

(no specification provided)

Sample No.: 3 Location: Source of Sample: AP-22

Date: 2/26/01 Elev./Depth: 9.5-11.5

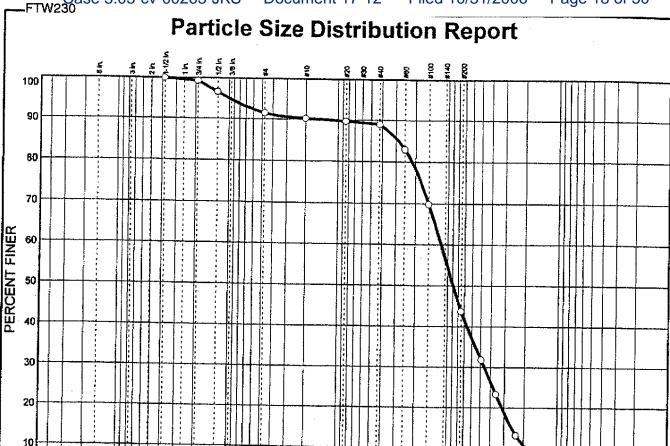
A.W. Murfitt Company Client: U.S. Army Engineer District, Alaska

Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate



GRAIN SIZE - mm % COBBLES % GRAVEL % SAND % SILT % CLAY 8.5 47.8 43.7

г		T		
1	SIEVE	PERCENT	SPEC.*	PASS?
	SIZE	FINER	PERCENT	(X=NO)
	1.5 in. .75 in. .5 in. #4 #10 #40 #60 #100 #200	100.0 99.3 96.6 91.5 90.2 89.7 89.0 83.0 69.8 43.7		

Silty sand. 10.7% finer than 0. Frost Class F 2.	02mm.	
Frost Class F 2.	02mm.	
PL= NP	Atterberg Limits LL= NV	PI=
D <sub>85</sub> = 0.285 D <sub>30</sub> = 0.0459 C <sub>U</sub> = 6.08	Coefficients D <sub>60</sub> = 0.115 D <sub>15</sub> = 0.0257 C <sub>c</sub> = 0.96	D <sub>50</sub> = 0.0895 D <sub>10</sub> = 0.0190
USCS= SM	Classification AASHTO=	=
Natural Moisture 18		
Sticks Present In Sa	mple.	

(no specification provided)

Sample No.: 2 Location:

Source of Sample: AP-23

Date: 2/26/01 Elev./Depth: 4.5-6.5

0.001

A.W. Murfitt Company

Client: U.S. Army Engineer District, Alaska

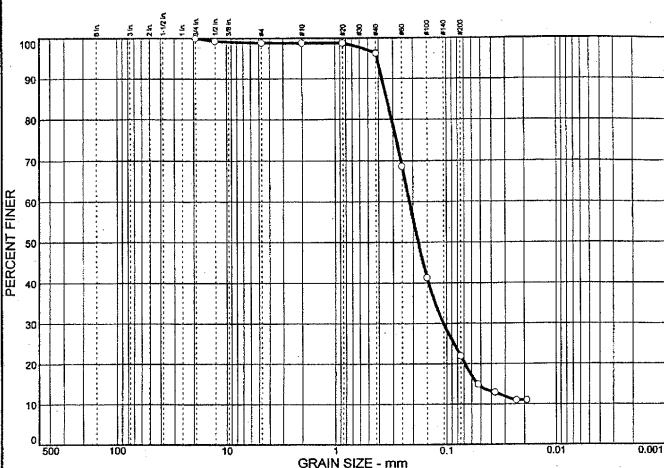
Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

**Plate** 





% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	1.1	77.0	21.9	

	SIEVE	PERCENT	SPEC.	PASS?
ļ	SIZE	FINER	PERCENT	(X=NO)
	.75 in. .5 in. #4 #10 #20 #40 #60 #100 #200	100.0 99.3 98.9 98.8 98.8 96.3 68.6 41.3 21.9		

	Soil Description	
Silty sand.	•	
11.0% finer than	0.02mm.	
Frost Class F 2.		
	Atterberg Limits	
PL= NP	LL= NV	PI≔
	Coefficients	
Das= 0.340	D <sub>60</sub> = 0,215	D <sub>50</sub> ≔ 0.179
D <sub>85</sub> = 0.340 D <sub>30</sub> = 0.107 C <sub>u</sub> =	$D_{60} = 0.215$ $D_{15} = 0.0528$	Dĭ0=
Cū≅	C <sub>c</sub> ≟	
•	Classification	
USCS= SM	AASHTO	O= ·
	Rema <u>rks</u>	
Natural Moisture		
valutat ivioistui	J 227.070.	

Sample No.: 4 Location:

Source of Sample: AP-23

Elev./Depth: 14.5-16.5

Date: 2/26/01

A.W. Murfitt Company

Client: U.S. Army Engineer District, Alaska

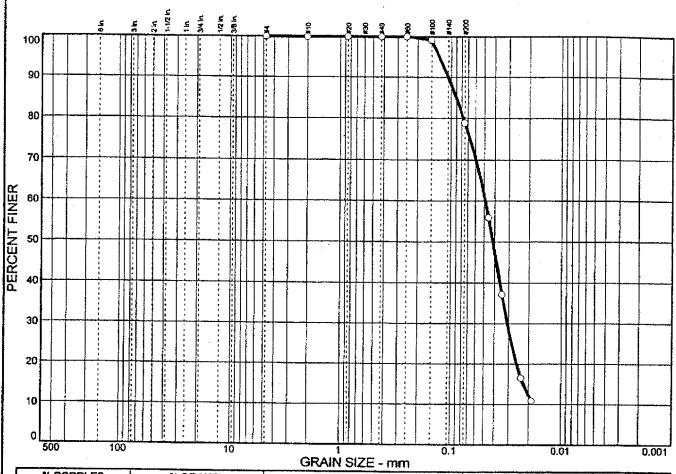
Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

**Project No: 01-369.08** 

Plate

# **Particle Size Distribution Report**



		OLO MIL OILL - IMII		
% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	21.1	78,9	·

SI	EVE	PERCENT	SPEC.*	PASS?
s	IZE	FINER	PERCENT	(X=NO)
# # #1	#4 #10 #20 #40 #60 00 00	100.0 100.0 100.0 100.0 100.0 99.2 78.9		

	Soil Description	
Silt with sand. 12.4% finer than Frost Class F 4.	0.02mm.	
PL= NP	Atterberg Limits LL= NV	PI=
D <sub>85</sub> = 0.0901 D <sub>30</sub> = 0.0309 C <sub>u</sub> =	Coefficients D60= 0.0488 D15= 0.0222 C <sub>c</sub> =	D <sub>50</sub> = 0.0416 D <sub>10</sub> =
USCS= ML	Classification AASHT	O=
Natural Moisture	<u>Remarks</u> 2.3%.	

(no specification provided)

Sample No.: 2 Location:

Source of Sample: AP-24

Date: 2/26/01 Elev./Depth: 4.5-6.5

A.W. Murfitt Company

Client: U.S. Army Engineer District, Alaska

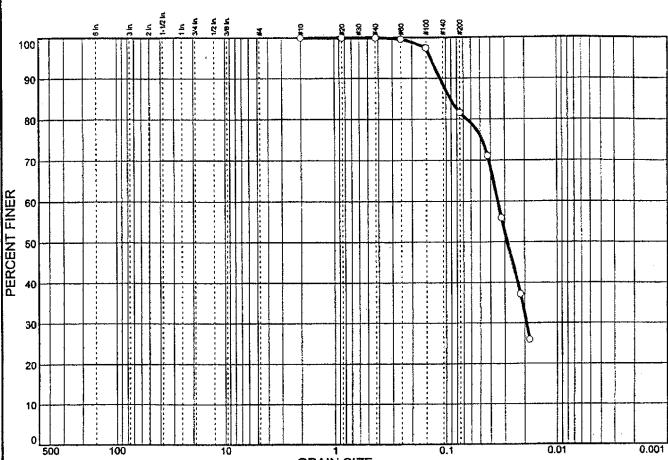
Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

**Plate** 





GRAIN SIZE - mm % CLAY % COBBLES % SAND % SILT % GRAVEL 81.6 0.0 0.0 18.4

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#10 #20 #40 #60 #100 #200	100.0 100.0 100.0 99.6 97.5 81.6		

	Soil Description	
Silt with sand.		
31.9% finer than	0.02mm.	
Frost Class F 4.		
PL= NP	Atterberg Limits LL= NV	PI=
D <sub>85</sub> = 0.0913 D <sub>30</sub> = 0.0192 C <sub>u</sub> =	Coefficients D60= 0.0347 D15= Cc=	D <sub>50</sub> = 0.0286 D <sub>10</sub> =
USCS= ML	Classification AASHT	O=
	Remarks	
Natural Moisture		
Depth On The L	ab Request Form Doe	s Not Match Depth On
Bag.		

(no specification provided)

Sample No.: 3

Source of Sample: AP-24

Date: 2/26/01 Elev./Depth: 9.5-11.0

Location:

A.W. Murfitt Company

Client: U.S. Army Engineer District, Alaska

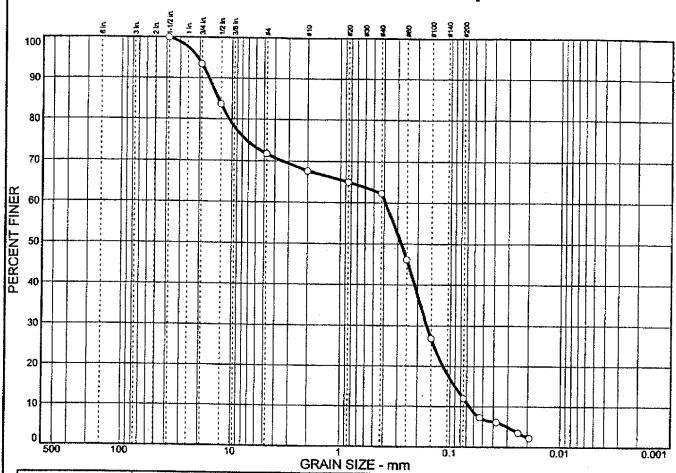
Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

**Plate** 





% COBBLES % GRAVEL % SAND % SILT % CLAY 0.0 28.3 59.7 12.0

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
1.5 in. .75 in. .5 in. #4 #10 #20 #40 #60 #100 #200	100.0 93.5 83.7 71.7 67.6 65.0 62.3 46.1 26.8 12.0		

2.4% finer than 0.0	Soil Description Poorly graded sand with silt and gravel. 2.4% finer than 0.02mm. Non Frost Susceptible.				
PL= NP	Atterberg Limits LL= NV	PI=			
D <sub>85</sub> = 13.4 D <sub>30</sub> = 0.165 C <sub>u</sub> = 5.91	Coefficients D60= 0.391 D15= 0.0900 C <sub>C</sub> = 1.05	D <sub>50</sub> = 0.280 D <sub>10</sub> = 0.0661			
USCS= SP-SM	Classification AASHTO=	=			
Natural Moisture 1	<u>Remarks</u> 7.9%.				

(no specification provided)

Sample No.: 2 Location:

Source of Sample: AP-25

Date: 2/26/01 Elev./Depth: 4.5-6.5

A.W. Murfitt Company

Client: U.S. Army Engineer District, Alaska

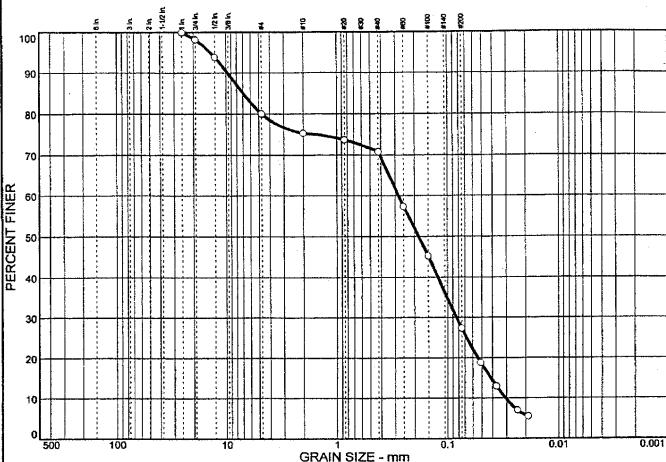
Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

**Plate** 

## **Particle Size Distribution Report**



	SIVAN SIZE - HIM				
ĺ	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
	0.0	19.9	52.8	27.3	

		<del>,</del>	
SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
1 in. .75 in. .5 in. #10 #20 #40 #60 #100 #200	100.0 98.2 93.9 80.1 75.3 73.7 70.8 57.3 45.2 27.3		

	Soil Description	
Silty sand with g	gravel.	
5.8% finer than	0.02mm.	
Frost Class S 2.	•	
PL= NP	Atterberg Limits LL= NV	PI=
D <sub>85</sub> = 6.95 D <sub>30</sub> = 0.0836 C <sub>u</sub> = 9.10	Coefficients D60= 0.279 D15= 0.0416 C <sub>C</sub> = 0.82	D <sub>50</sub> = 0.183 D <sub>10</sub> = 0.0307
USCS= SM	Classification AASHT	O==
Natural Moistur	Remarks e 9.0%.	÷

(no specification provided)

Sample No.: 3 Location:

Source of Sample: AP-25

Date: 2/26/01

**Elev./Depth:** 9.5-11.5

A.W. Murfitt Company

Client: U.S. Army Engineer District, Alaska

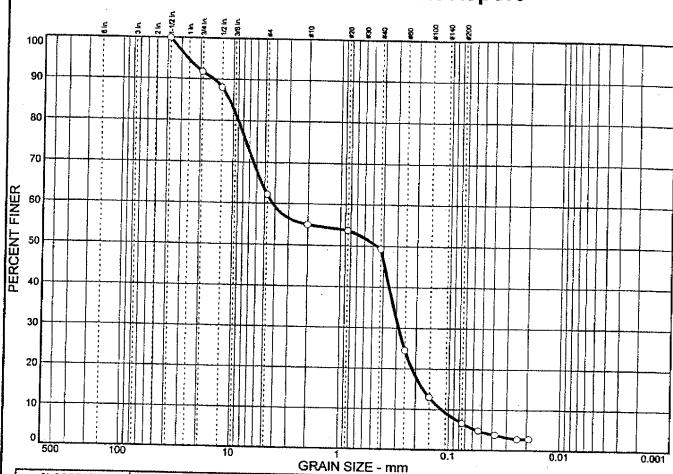
Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

43 Plate





% COBBLES % GRAVEL % SAND % SILT % CLAY 0.0 37.8 55.5 6.7

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
1.50 in. .75 in. .5 in. #10 #20 #40 #60 #100 #200	100.0 91.8 88.0 62.2 54.9 53.7 49.3 24.5 13.0 6.7		

Non Frost Suscept	Atterberg Limits	
PL= NP	LL= NV	PI=
D <sub>85</sub> = 10.9 D <sub>30</sub> = 0.287 C <sub>U</sub> = 36.42	Coefficients D60= 4.21 D15= 0.171 C <sub>C</sub> = 0.17	D50= 0.462 D10= 0.115
USCS= SP-SM	Classification AASHT	O= ·

Soil Description

(no specification provided)

Sample No.: 3 Location:

Source of Sample: AP-26

Date: 2/26/01

Elev./Depth: 9.5-11.5

A.W. Murfitt Company

Client: U.S. Army Engineer District, Alaska

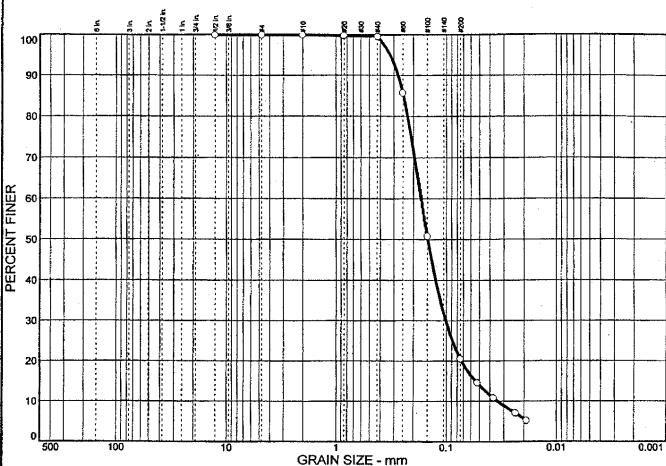
Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

**Plate** 





GRAIN SIZE - mm					
% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	
0.0	0.0	79.5	20.5		

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
.5 in. #4 #10 #20 #40 #60 #100 #200	100.0 100.0 100.0 99.8 99.6 85.7 50.8 20.5		

5.6% finer than 0		
Possibly Frost Su	isc <del>e</del> ptible.	
PL= NP	Atterberg Limits	PI=
D <sub>85</sub> = 0.247 D <sub>30</sub> = 0.102 C <sub>u</sub> = 4.97	Coefficients D60= 0.171 D15= 0.0541 C <sub>C</sub> = 1.76	D <sub>50</sub> = 0.148 D <sub>10</sub> = 0.0344
USCS= SM	Classification AASH	ro=
	Remarks	
Natural Moisture	: 5.9%.	÷
Sticks And Organ	nics Present In Samp	ile.

Sample No.: 2

Source of Sample: AP-27

Date: 2/26/01

Location:

Elev./Depth: 4.0-6.0

A.W. Murfitt Company

Client: U.S. Army Engineer District, Alaska

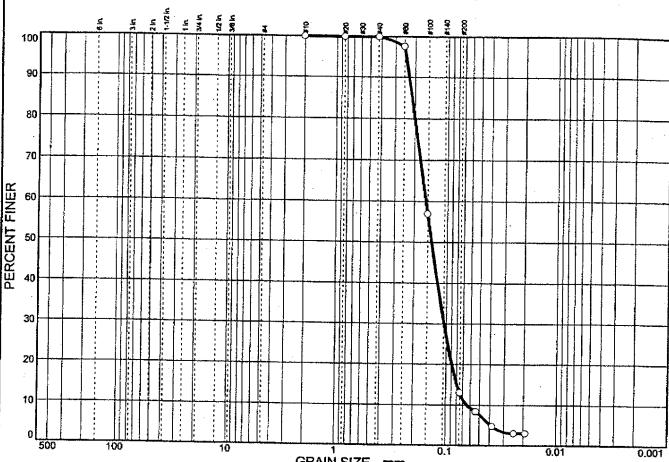
Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate

### rarticle Size Distribution Report



		GRAIN SIZE - MM		
% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	87.0	13.0	

PASS7
1 7001
(X=NO)

Soil Description					
Silty sand.		•			
3.0% finer than (	).02mm.				
Non Frost Susce	ptible.				
PL= NP	Atterberg Limits LL= NV	PI=			
D <sub>85</sub> = 0.213 D <sub>30</sub> = 0.105 C <sub>u</sub> = 2.43	Coefficients D60= 0.156 D15= 0.0797 Cc= 1.11	D <sub>50</sub> = 0.138 D <sub>10</sub> = 0.0642			
USCS= SM	USCS= SM Classification AASHTO=				
Natural Moisture	Remarks Natural Moisture 5.6%.				
Depth On Lab Request Form Does Not Match Depth On Bag.					
<del></del>	<del></del>				

(no specification provided)

Sample No.: 3 Location:

Source of Sample: AP-27

Date: 2/26/01 Elev./Depth: 9.0-11.0

A.W. Murfitt Company

Client: U.S. Army Engineer District, Alaska

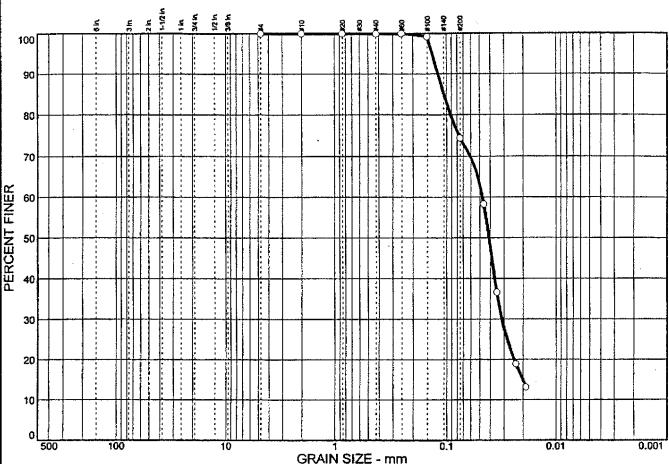
Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate

### **Particle Size Distribution Report**



	017 117 0125 1117					
% C	OBBLES	% GRAVEL	% SAND	% SILT	% CLAY	
	0.0	0.0	25.6	74.4		

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#4 #10 #20 #40 #60 #100 #200	100.0 100.0 100.0 100.0 100.0 99.2 74.4		

Soil Description				
Silt with sand.				
14.7% finer than	0.02mm.			
Frost Class F 4.				
PL= NP	Atterberg Limits LL= NV	PI=		
D <sub>85</sub> = 0.106 D <sub>30</sub> = 0.0314 C <sub>U</sub> =	Coefficients D <sub>60</sub> = 0.0472 D <sub>15</sub> = 0.0202 C <sub>C</sub> =	D <sub>50</sub> = 0.0412 D <sub>10</sub> =		
USCS= ML	Classification AASHT	·O=		
Remarks Natural Moisture 15.8%.				

(no specification provided)

Sample No.: 2 Location:

Source of Sample: AP-28

Date: 2/26/01 Elev./Depth: 4.0-6.0

A.W. Murfitt Company

Client: U.S. Anny Engineer District, Alaska

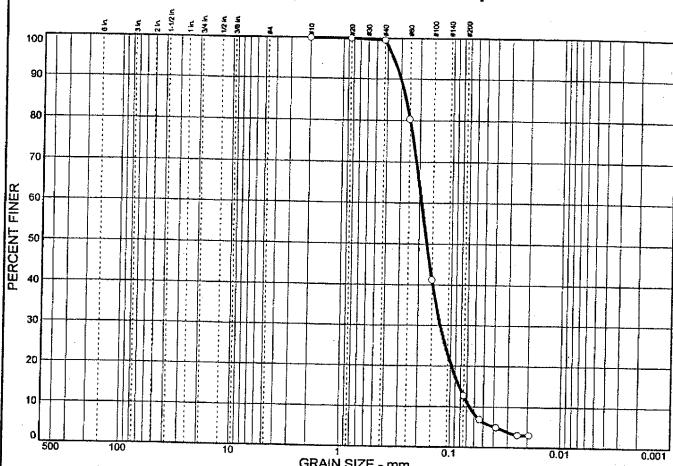
Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate





		GRAIN SIZE - MM		
% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	97.2	74 OILI	76 CLAT
0.0	0.0	87.3	12.7	

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X≈NO)
#10 #20 #40 #60 #100 #200	100.0 100.0 99.6 80.4 41.2 12.7		

	Soil Description				
Silty sand.	•				
3.1% finer than	0.02mm.				
Frost Class S 2.					
PL= NP	Atterberg Limits LL= NV	PI=			
D <sub>85</sub> = 0.271 D <sub>30</sub> = 0.124 C <sub>u</sub> = 2.89	Coefficients D60= 0.191 D15= 0.0825 C <sub>C</sub> = 1.23	D <sub>50</sub> = 0.169 D <sub>10</sub> = 0.0660			
USCS= SM	Classification AASHT	O=			
Natural Maistern 6 28/					
Natural Moisture 6.2%.  Depth On Lab Request Form Does Not Match Depth On Bag.					

Sample No.: 3 Location:

Source of Sample: AP-28

Date: 2/26/01 Elev/Depth: 9.0-11.0

A.W. Murfitt Company

Client: U.S. Army Engineer District, Alaska

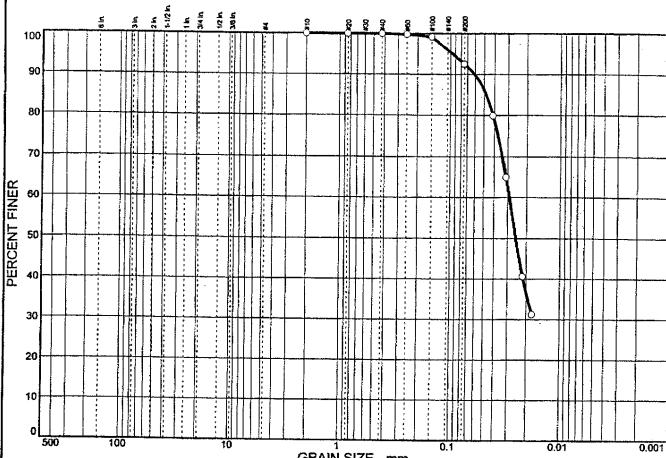
Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate





GRAIN SIZE - MIII						
% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY		
0.0	0.0	7.4	92.6			

		·		
ĺ	SIEVE	PERCENT	SPEC.	PASS?
	SIZE	FINER	PERCENT	(X=NO)
	#10 #20 #40 #60 #100 #200	100.0 100.0 100.0 99.8 99.2 92.6		
L				

	Soil Description	1
Silt.	•	
36.6% finer than	0.02mm.	
Frost Class F 4.		
PL= NP	Atterberg Limits	PI≖
D <sub>85</sub> = 0.0479 D <sub>30</sub> = C <sub>u</sub> =	Coefficients D60= 0.0290 D15= C <sub>C</sub> =	D <sub>50</sub> = 0.0252 . D <sub>10</sub> =
USCS= MI.	Classification AASHT	:O=
Natural Moisture	Remarks 30.9%.	

Sample No.: 2 Location:

Source of Sample: AP-29

Date: 2/26/01

Elev./Depth: 4.5-6.5

A.W. Murfitt Company

Client: U.S. Army Engineer District, Alaska

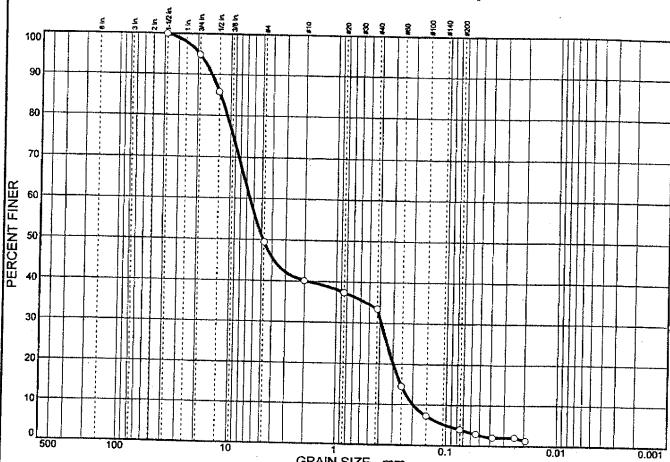
Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate





		GRAIN SIZE - mm		
% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	50.6	A5 A	4.0	ACCAL
		₹₽,₹	1 4.0	

		·		
	SIEVE	PERCENT	SPEC.*	PASS?
	SIZE	FINER	PERCENT	(X=NO)
	1.5 in. .75 in. .5 in. #40 #40 #60 #100 #200	100.0 94.9 85.8 49.4 40.1 37.4 33.5 14.5 7.3 4.0		
- 1				

Soil Description  Poorly graded gravel with sand.  1.4% finer than 0.02mm.  Non Frost Susceptible.					
PL= NP	Atterberg Limits LL= NV	Pl=			
D <sub>85</sub> = 12.4 D <sub>30</sub> = 0.390 C <sub>u</sub> = 33.05	Coefficients D60= 6.53 D15= 0.255 C <sub>C</sub> = 0.12	D <sub>50</sub> = 4.86 D <sub>10</sub> = 0.197			
USCS= GP	Classification AASHT0	O=			
Remarks Natural Moisture 1.8%.					

Sample No.: 3 Location:

Source of Sample: AP-29

Date: 2/26/01 Elev/Depth: 9.5-11.5

A.W. Murfitt Company

Client: U.S. Army Engineer District, Alaska

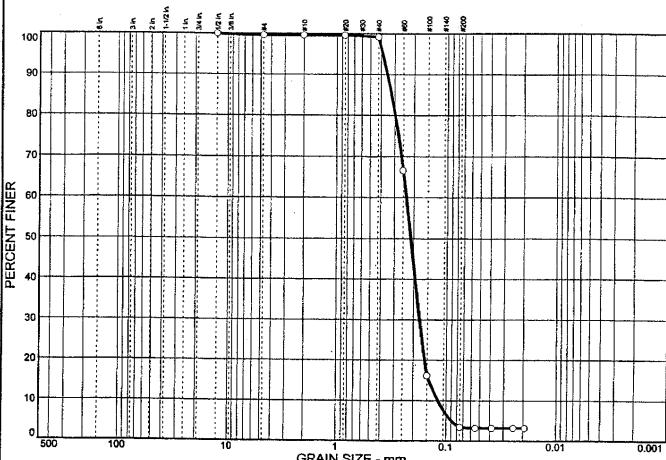
Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate

# **Particle Size Distribution Report**



GRAIN SIZE - mm							
% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY			
0.0	0.4	96.2	3.4				

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
.50 in. #4 #10 #20 #40	100.0 99.6 99.6 99.6 99.2		
#60 #100 #200	66.6 16.2 3.4		

	Soil Description	
Poorly graded sa	ınd.	
3.2% finer than	0.02mm.	
Frost Class S 2.		
PL= NP	Atterberg Limits LL= NV	P =
D <sub>85</sub> = 0.321 D <sub>30</sub> = 0.176 C <sub>u</sub> = 1.97	Coefficients D <sub>60</sub> = 0.233 D <sub>15</sub> = 0.144 C <sub>C</sub> = 1.11	D <sub>50</sub> = 0.212 D <sub>10</sub> = 0.119
USCS= SP	Classification AASHT	
Natural Moistur	<u>Remarks</u> c 27.2%.	

(no specification provided)

Sample No.: 5 Location:

Source of Sample: AP-29

Date: 2/26/01 Elev./Depth: 19.5-21.5

A.W. Murfitt Company

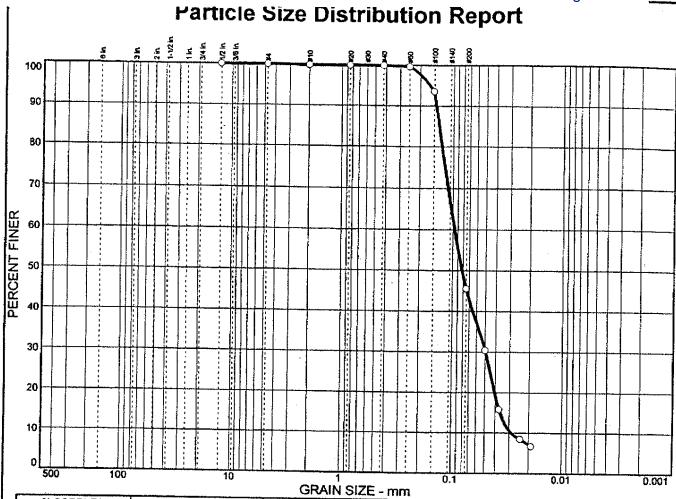
Client: U.S. Army Engineer District, Alaska

Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

**Plate** 



GRAIN SIZE - mm						
% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY		
0.0	0.0	54.5	15.5	// OLA		
			L			

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
.5 in. #4 #10 #20 #40 #60 #100 #200	100.0 100.0 99.9 99.9 99.7 93.6 45.5	PEROENT	(X-RO)

	Soil Description			
Silty sand.				
7.0% finer than	0.02mm.	•		
Frost Class F 2.				
DI 120	Atterberg Limits			
PL= NP	LL= NV	PI=		
	Coefficients			
D <sub>85</sub> = 0.134	$D_{60} = 0.0964$	$D_{50} = 0.0820$		
D30= 0.0496 C <sub>u</sub> = 3.34	$D_{15} = 0.0363$	$D_{10}^{-} = 0.0288$		
- <sub>Մ</sub> = 3.34	$C_{C} = 0.88$			
Classification				
USCS≕ SM	AASHT	O=		
Remarks				
Natural Moisture 7.0%.				
Traculat Micigliffe 1.076.				

Sample No.: 2 Location:

Source of Sample: AP-30

Date: 2/26/01 Elev./Depth: 4.5-6.5

A.W. Murfitt Company

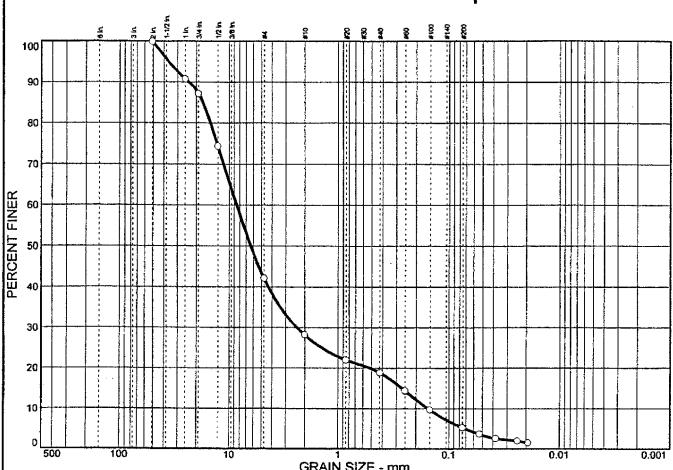
Client: U.S. Army Engineer District, Alaska

Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate



			010 th 1 010 11 11 11		
	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
	0.0	57.9	36.8	5.3	

SIEVE	PERCENT	SPEC."	PASS?
SIZE	FINER	PERCENT	(X=NO)
2 in. 1 in. .75 in. .5 in. #4 #10 #20 #40 #60 #100 #200	100.0 90.8 87.2 74.4 42.1 28.2 22.0 18.9 14.4 9.7 5.3		
	2 in. 1 in. .75 in. .5 in. #4 #10 #20 #40 #60 #100	SIZE         FINER           2 in.         100.0           1 in.         90.8           .75 in.         87.2           .5 in.         74.4           #4         42.1           #10         28.2           #20         22.0           #40         18.9           #60         14.4           #100         9.7	SIZE FINER PERCENT  2 in. 100.0 1 in. 90.8 .75 in. 87.2 .5 in. 74.4 #4 42.1 #10 28.2 #20 22.0 #40 18.9 #60 14.4 #100 9.7

Atterberg Limits						
PL= NP	LL= NV	PI=				
D <sub>85</sub> = 17.4 D <sub>30</sub> = 2.36 C <sub>u</sub> = 55.00	Coefficients D <sub>60</sub> = 8.55 D <sub>15</sub> = 0.266 C <sub>C</sub> = 4.18	D <sub>50</sub> = 6.32 D <sub>10</sub> = 0.156				
USCS= GP-GM Classification AASHTO=						
Remarks Natural Moisture 2.0%.						

**Soil Description** 

Poorly graded gravel with silt and sand.

(no specification provided)

Sample No.: 3 Location:

Source of Sample: AP-30

Date: 2/26/01 Elev./Depth: 9.5-11.5

A.W. Murfitt Company

Client: U.S. Army Engineer District, Alaska

Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate

#### APPENDIX C

CORROSIVITY RESULTS
of
SELECTED SOIL SAMPLES

Thornton, CO 80241 (303) 469-8868 (800) 873-8707 FAX: (303) 469-5254



2/21/01

US Army Corps of Engineers P.O. Box 898

Anchorage, AK 99506-0898

Attn: Jim Robson

an Analytica Group Company

Work Order #: B0102082

Date: 2/21/01

Work ID: FTW230 Family Housing Improve

Date Received: 2/9/01

#### Sample Identification

Lab Sample Number	Client Description	Lab Sample Number	Client Description
B0102082-01	AP3, SA-2 4.5-6.5	B0102082-02	AP9, SA-2 4.5-6.5
B0102082-03	AP13, SA-2 4.0-6.0	B0102082-04	AP18, SA-2 4.5-6.5
B0102082-05	AP21, SA-2 4.5-6.5	B0102082-06	AP26, SA-2 4.5-6.5

Enclosed are the analytical results for the submitted sample(s). Please review the CASE NARRATIVE for a discussion of any data and/or quality control issues. Listings of data qualifiers analytical codes, key dates, and QC relationships are provided at the end of the report.

#### Case Narrative

Analytica Environmental Laboratories, Inc. Work Order: B0102082

Samples were prepared and analyzed according to methods outlined in the following references:

- o Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.
- o Test Methods for Evaluating Solid Waste, USEPA SW-846, Third Edition, Revision 4, December 1996.
- Standard Method for Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures, ASTM D 2216-80, July 1980.

Problems encountered with the analyses are discussed in the following narrative.

FY01 REPLEASEMENT-FINENTY-FINENCY-JHOS/SINGocument 17-12 Filed 10/31/2006 Page 37 d 1630 Analytica Environmentat Laboratories, inc **Detailed Analytical Report** Workorder (SDG): B0102082 FTW230 Family Housing Improve Project: U.S. Army Corps of Engineers Client: none Client Project Number: Client Sample Report Report Section: Client Sample Name: AP3, SA-2 4.5-6.5 Collection Date: 1/20/01 I2:00:00PM Soil Matrix: The following test was conducted by: Analytica - Thornton 2/13/01 9:56:15AM B0102082-01A Analysis Date: Lab Sample Number: Probe Prep Date: 2/13/01 Instrument: File Name: Analytical Method ID: pH (SW 9045B) 1 Dilution Factor: Prep Method ID: pH9040B 9.78 Percent Moisture Prep Batch Number: B010213004 Analyst Initials: AS Dry Weight Basis Report Basis: Rerun #: Flags Units POL <u>MDL</u> CASNo Result Analyte 0.10 0.10 рΗ 6.9 pΗ The following test was conducted by: Analytica - Thornton 2/15/01 9:00:03 AM Analysis Date: B0102082-01A Lab Sample Number: Probe Prep Date: 2/14/01 Instrument: Specific Conductance (SW 9050) Analytical Method ID: File Name: 1 Dilution Factor: 9050 S Prep Method ID: 9.78 Percent Moisture Prep Batch Number: B010216001 SBP Analyst Initials: Dry Weight Basis Report Basis: Rerun#: POL MDL Flags Units CASNo Analyte Result umhos/cm 5.0 1.0 110 Conductance The following test was conducted by: Analytica - Thornton 2/15/01 12:03:49PM Analysis Date: B0102082-01A Lab Sample Number: Titrametric 2/14/01 Instrument: Prep Date: Analytical Method ID: File Name: Sulfide, Total (EPA 376.1) 1 Dilution Factor: 376.1M Prep Method ID: 9.78 Percent Moisture Prep Batch Number: B010220008 SBP Analyst Initials: Dry Weight Basis Report Basis: Rerun #: POL MDL. Flags Units **CASNo** Result Analyte 1 0.55 mg/Kg 2.8 ND Sulfide, Total The following test was conducted by: Analytica - Thornton 2/15/01 12:17:37PM Analysis Date: B0102082-01A Lab Sample Number:

Instrument:

File Name:

MDL

0.038

0.17

Dilution Factor:

Percent Moisture

Analyst Initials:

010215\_007.DXD

Rerun #:

9.78

SBP

12

2/14/01

300.0

B010216003

**CASNo** 

Dry Weight Basis

Anions by IC (EPA 300.0 M)

Prep Date:

Analytical Method ID:

Prep Batch Number:

Prep Method ID:

Report Basis:

<u>Analyte</u>

Chloride

Sulfate

Result

9.68

Flags Units

PQL

mg/kg 0.22

mg/kg 0.55

FY01 REPLACEMENT FAMILY HOUSING Document 17-12 Page 38 5W380 Filed 10/31/2006

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG):

B0102082

Project:

FTW230 Family Housing Improve

Client:

U.S. Army Corps of Engineers

Client Project Number:

none

Report Section:

Client Sample Report

Client Sample Name:

AP9, SA-2 4.5-6.5

Matrix:

The following test was conducted by: Analytica - Thornton

Lab Sample Number:

B0102082-02A

Prep Date:

2/13/01

Soil

Analytical Method ID:

pH (SW 9045B) pH9040B

Prep Batch Number: Report Basis:

**Analyte** 

Prep Date:

Report Basis:

**Analyte** 

Analyte

**Analyte** 

Chloride

Sulfate

Conductance

pН

Prep Method ID:

B010213004 Dry Weight Basis

**CASNo** 

Result 7.1

Flags Units pH

0.10 0.10

POL

**Analyst Initials: MDL** 

Collection Date:

Analysis Date:

Dilution Factor:

Percent Moisture

Analysis Date:

Dilution Factor:

Percent Moisture

Analyst Initials:

Analysis Date:

Instrument:

File Name:

Instrument:

File Name:

**MDL** 

<u>MDL</u>

0.58

Instrument:

File Name:

Probe

1

1/23/01 12:00:00PM

Probe

I

13

AS

2/13/01 9:56:15AM

Rerun #: Ī

The following test was conducted by: Analytica - Thornton Lab Sample Number:

B0102082-02A 2/14/01

Analytical Method ID:

Specific Conductance (SW 9050) 9050 S

Prep Method ID: Prep Batch Number:

B010216001 Dry Weight Basis

CASNo.

Result

Result

Result

2.9

44

Flags Units umhos/cm 5.0

<u>PQL</u> 1.0

13 SBP

Rerun #:

2/15/01 12:03:49PM

Titrametric

ı

13

2/15/01 9:00:03AM

The following test was conducted by: Analytica - Thornton

Lab Sample Number: Prep Date:

B0102082-02A

2/14/01

Analytical Method ID:

Sulfide, Total (EPA 376.1) Prep Method ID: 376.1M

Prep Batch Number: Report Basis:

B010220008

Dry Weight Basis **CASNo** 

Flags Units

POL mg/Kg 2.9

Dilution Factor: Percent Moisture

Analysis Date:

Dilution Factor:

Percent Moisture

Analyst Initials:

Instrument:

File Name:

SBP **Analyst Initials:** 

Sulfide, Total ND The following test was conducted by: Analytica - Thornton

Lab Sample Number: Prep Date:

B0102082-02A

Analytical Method ID:

2/14/01

Anions by IC (EPA 300.0 M)

Prep Method ID: Prep Batch Number: Report Basis:

B010216003 Dry Weight Basis

**CASNo** 

<u>PQL</u> Flags Units 0.23 mg/kg mg/kg 0.58

0.039 0.18

MDL

2/15/01 1:06:45PM

Rerun #:

010215\_010.DXD

13 SBP

ı

Rerun #:

FY01 REPLACEMENT FAMILY HOUSING
Case 3:05-cv-00263-JKS Document 17-12 Filed 10/31/2006 Page 39 of 50

Detailed Analytical Report
Workorder (SDG): B0102082

Project: FTW230 Family Housing Improve
Client: U.S. Army Corps of Engineers
Client Project Number: none

Report Section: Client Sample Report

Client Sample Name: AP13, SA-2 4.0-6.0 Collection Date: 1/25/01 12:00:00PM Soil Matrix: The following test was conducted by: Analytica - Thornton B0102082-03A Lab Sample Number: Analysis Date: 2/13/01 9:56:15AM Prep Date: 2/13/01 Probe Instrument: Analytical Method ID: pH (SW 9045B) File Name: Prep Method ID: pH9040B Dilution Factor: 4.87 Prep Batch Number: B010213004 Percent Moisture AS Report Basis: Dry Weight Basis Analyst Initials: <u>MDL</u> **PQL** Rerun #: Flags Units **CASNo** Result Analyte 0.10 pН 0.10 7.3 pН The following test was conducted by: Analytica - Thornton Lab Sample Number: B0102082-03A Analysis Date: 2/15/01 9:00:03AM 2/14/01 Probe Prep Date: Instrument: Analytical Method ID: Specific Conductance (SW 9050) File Name: l Prep Method ID: 9050 S Dilution Factor: 4.87 Prep Batch Number: B010216001 Percent Moisture SBP Dry Weight Basis Analyst Initials: Report Basis: **POL** MDL Rerun#: CASNo Flags Units **Analyte** Result umhos/cm 5.0 1.0 Conductance 120 The following test was conducted by: Analytica - Thornton Lab Sample Number: B0102082-03A Analysis Date: 2/15/01 12:03:49PM Prep Date: 2/14/01 Titrametric Instrument: Analytical Method ID: File Name: Sulfide, Total (EPA 376.1) 1 Prep Method ID: 376.1M Dilution Factor: 4.87 Prep Batch Number: B010220008 Percent Moisture SBP Dry Weight Basis Analyst Initials: Report Basis: POL MDL Rerun #: Flags Units CASNo Analyte Result 1 ND mg/Kg 2.6 0.53 Sulfide, Total The following test was conducted by: Analytica - Thornton B0102082-03A 2/15/01 1:23:05PM Lab Sample Number: Analysis Date: 2/14/01 IC Prep Date: Instrument: Analytical Method ID: 010215 011.DXD Anions by IC (EPA 300.0 M) File Name: Prep Method ID: 300.0 Dilution Factor: 4.87 Prep Batch Number: B010216003 Percent Moisture SBP Dry Weight Basis Analyst Initials: Report Basis: **MDL** Rerun #: POL CASNo Result Flags Units **Analyte** mg/kg 0.21 0.036 0.24 Chloride mg/kg 0.53 0.16 6.5 Sulfate

FY01 REPLACEMENT FAMILY HOUSING Case 3:05-cv-00263-JKS Document 17-12 Filed 10/31/2006 Page 40 of 50 Detailed Analytical Report Analytical Environmental Laboratories, Inc.

Workorder (SDG):

B0102082

Project: FTW230 Fan

Client: U

FTW230 Family Housing Improve U.S. Army Corps of Engineers

Client Project Number:

none

Report Section:

Sulfate

Client Sample Report

Client Sample Name:

AP18, SA-2 4.5-6.5

Soil Matrix: Collection Date: 1/26/01 12:00:00PM The following test was conducted by: Analytica - Thornton Lab Sample Number: B0102082-04A Analysis Date: 2/13/01 9:56:15AM Prep Date: 2/13/01 Probe Instrument: Analytical Method ID: pH (SW 9045B) File Name: Prep Method ID: pH9040B ı Dilution Factor: Prep Batch Number: B010213004 7.96 Percent Moisture Report Basis: Dry Weight Basis Analyst Initials: AS Analyte **CASNo** POL **MDL** Flags Units Result Rerun #: pΗ 0.10 7.0 pΗ 0.10 1 The following test was conducted by: Analytica - Thornton Lab Sample Number: B0102082-04A Analysis Date: 2/15/01 9:00:03AM Prep Date: 2/14/01 Instrument: Probe Analytical Method ID: Specific Conductance (SW 9050) File Name: Prep Method ID: 9050 S l Dilution Factor: Prep Batch Number: B010216001 7.96 Percent Moisture Report Basis: Dry Weight Basis Analyst Initials: SBP PQL **Analyte CASNo** MDL Flags Units Result Rerun #: Conductance umbos/cm 5.0 1.0 140 The following test was conducted by: Analytica - Thornton Lab Sample Number: B0102082-04A Analysis Date: 2/15/01 12:03:49PM Prep Date: 2/14/01 Titrametric Instrument: Analytical Method ID: Sulfide, Total (EPA 376.1) File Name: Prep Method ID: 376.1M l Dilution Factor: Prep Batch Number: B010220008 7.96 Percent Moisture Report Basis: Dry Weight Basis SBP Analyst Initials: CASNo. <u>PQL</u> <u>MDL</u> Analyte Flags Units Result Rerun #: Sulfide, Total ND mg/Kg 2.7 0.54 The following test was conducted by: Analytica - Thornton Lab Sample Number: B0102082-04A Analysis Date: 2/15/01 1:39:27PM Prep Date: 2/14/01 IC Instrument: Analytical Method ID: Anions by IC (EPA 300.0 M) File Name: 010215 012.DXD Prep Method ID: 300.0 Dilution Factor: Prep Batch Number: B010216003 7.96 Percent Moisture Report Basis: Dry Weight Basis Analyst Initials: SBP Analyte CASNo <u>POL</u> MDL Flags Units Result Rerun #: Chloride 0.83 0.037 0.22 mg/kg

6.6

mg/kg 0.54

0.17

7-12 Filed 10/31/2006 Page 41 of 50 Page 41 B0102082 Workorder (SDG): FTW230 Family Housing Improve Project: Client: U.S. Army Corps of Engineers none Client Project Number: Client Sample Report Report Section: Client Sample Name: AP21, SA-2 4.5-6.5 1/27/01 12:00:00PM Collection Date: Soil Matrix: The following test was conducted by: Analytica - Thornton B0102082-05A 2/13/01 9:56:15AM Analysis Date: Lab Sample Number: Prep Date: 2/13/01 Probe Instrument: Analytical Method ID: File Name: pH (SW 9045B) 1 Dilution Factor: Prep Method ID: pH9040B 17 Percent Moisture Prep Batch Number: B010213004 AS Dry Weight Basis Analyst Initials: Report Basis: PQL. MDL Rerun #: Flags Units CASNo Result Analyte ı pН 0.10 0.10 6.8 pН The following test was conducted by: Analytica - Thornton 2/15/01 9:00:03AM B0102082-05A Lab Sample Number: Analysis Date: 2/14/01 Probe Prep Date: Instrument: Analytical Method ID: Specific Conductance (SW 9050) File Name: 1 Dilution Factor: Prep Method ID: 9050 S 17 Prep Batch Number: B010216001 Percent Moisture Analyst Initials: SBP Dry Weight Basis Report Basis: MDL Rerun #: <u>POL</u> Flags Units CASNo Result **Analyte** ł 1.0 umhos/cm 5.0 240 Conductance The following test was conducted by: Analytica - Thornton 2/15/01 12:03:49PM B0102082-05A Lab Sample Number: Analysis Date: Titrametric Prep Date: 2/14/01 Instrument: Analytical Method ID: File Name: Sulfide, Total (EPA 376.1) 1 Dilution Factor: Prep Method ID: 376.1M 17 Percent Moisture Prep Batch Number: B010220008 SBP Analyst Initials: Dry Weight Basis Report Basis: **MDL** Rerun #: POL Flags Units CASNo Result **Analyte** 1 mg/Kg 3.0 0.60 ND Sulfide, Total The following test was conducted by: Analytica - Thornton 2/15/01 2:28:36PM B0102082-05A Analysis Date: Lab Sample Number: 2/14/01 Prep Date: Instrument: 010215\_015.DXD Analytical Method ID: Anions by IC (EPA 300.0 M) File Name: 1 Dilution Factor: Prep Method ID: 300.0 17 Prep Batch Number: Percent Moisture B010216003 Analyst Initials: SBP Dry Weight Basis Report Basis: **MDL** Rerun #: <u>PQL</u> Flags Units Analyte CASNo. Result mg/kg 0.24 0.041 0.98 Chloride

FY01 REPLACEMENT FAMILY HOUSING Document 17-12

21

Sulfate

0.19

mg/kg 0.60

FY01 REPLACEMENT FAMILY HOUSING

Pote: Case 3:05-cv-00263-JKS Document 17-12 Filed 10/31/2006 Detailed Analytical Report Workorder (SDG): B0102082 Project: FTW230 Family Housing Improve Client: U.S. Army Corps of Engineers Client Project Number: Report Section: Client Sample Report Client Sample Name: AP26, SA-2 4.5-6.5 Soil Matrix: Collection Date: 1/29/01 12:00:00PM The following test was conducted by: Analytica - Thornton Lab Sample Number: B0102082-06A Analysis Date: 2/13/01 9:56:15AM Prep Date: 2/13/01 Probe Instrument: Analytical Method ID: pH (SW 9045B) File Name: Prep Method ID: pH9040B 1 Dilution Factor: Prep Batch Number: B010213004 6.92 Percent Moisture Report Basis: Dry Weight Basis Analyst Initials: AS Analyte CASNo <u>PQL</u> Flags Units MDL Result Rerun #: 0.10 7.2 pН 0.10 ì The following test was conducted by: Analytica - Thornton Lab Sample Number: B0102082-06A Analysis Date: 2/15/01 9:00:03AM Prep Date: 2/14/01 Probe Instrument: Analytical Method ID: Specific Conductance (SW 9050) File Name: Prep Method ID: 9050\_S I Dilution Factor: Prep Batch Number: B010216001 6.92 Percent Moisture Report Basis: Dry Weight Basis Analyst Initials: SBP Analyte CASNo MDL PQL Flags Units Result Rerun #: Conductance umhos/cm 5.0 0.1 130 The following test was conducted by: Analytica - Thornton Lab Sample Number: B0102082-06A Analysis Date: 2/15/01 12:03:49PM Prep Date: 2/14/01 Titrametric Instrument: Analytical Method ID: Sulfide, Total (EPA 376.1) File Name: Prep Method ID: 376.IM ī Dilution Factor: Prep Batch Number: B010220008 6.92 Percent Moisture Report Basis: Dry Weight Basis SBP Analyst Initials: Analyte **CASNo PQL MDL** Flags Units Result Rerun #: Sulfide, Total mg/Kg 2.7 ND 0.54 ı The following test was conducted by: Analytica - Thornton Lab Sample Number: B0102082-06A Analysis Date: 2/15/01 2:44:58PM Prep Date: 2/14/01 Instrument: IC Analytical Method ID: Anions by IC (EPA 300.0 M) 010215\_016.DXD File Name: Prep Method ID: 300.0 Dilution Factor: Prep Batch Number: B010216003 6.92 Percent Moisture Report Basis: Dry Weight Basis SBP Analyst Initials: **Analyte** CASNo. POL MDL Flags Units Result Rerun #: Chloride mg/kg 0.21 0.037 0.39

mg/kg 0.54

9.6

0.17

Sulfate

FY01 REPLACEMENT FAMILY HOUSING Case 3:05-cv-00263-JKS Document 17-12 Filed 10/31/2006 Detailed Analytical Keport Workorder (SDG): B0102082 FTW230 Family Housing Improve Project: U.S. Army Corps of Engineers

Method Blank Report Report Section: Client Sample Name: Aqueous

none

Client:

Sulfate

Client Project Number:

Collection Date: 2/13/01 12:00:00AM Matrix: The following test was conducted by: Analytica - Thornton B010213004-MB Analysis Date: 2/13/01 9:\$6:15AM Lab Sample Number: Probe 2/13/01 Prep Date: Instrument: File Name: Analytical Method ID: pH (SW 9045B) Dilution Factor: pH9040B Prep Method ID: Prep Batch Number: B010213004 AS Analyst Initials: Dry Weight Basis Report Basis: <u>PQL</u> Rerun #: Flags Units CASNo. Result Analyte 1 0.10 0.10 ND ηĦ рΗ The following test was conducted by: Analytica - Thornton 2/15/01 9:00:03AM B010216001-MB Analysis Date: Lab Sample Number: Probe 2/14/01 Prep Date: Instrument: Specific Conductance (SW 9050) Analytical Method ID: File Name: 1 Dilution Factor: 9050 S Prep Method ID: Prep Batch Number: B010216001 SBP Analyst Initials: Dry Weight Basis Report Basis: PQL MDL Rerun #: CASNo Flags Units Result Analyte umhos/cm 5.0 1.0 ND Conductance The following test was conducted by: Analytica - Thornton 2/15/01 12:03:49PM B010220008-MB Analysis Date: Lab Sample Number: Titrametric 2/14/01 Prep Date: Instrument: File Name: Analytical Method ID: Sulfide, Total (EPA 376.1) Dilution Factor: 376.1M Prep Method ID: B010220008 Prep Batch Number: SBP Analyst Initials: Dry Weight Basis Report Basis: **PQL** Rerun #: Flags Units **CASNo** Result **Analyte** mg/Kg 2.5 0.50 ND Sulfide, Total The following test was conducted by: Analytica - Thornton Analysis Date: 2/15/01 11:44:54AM B010216003-MB Lab Sample Number: IC Prep Date: 2/14/01 Instrument: 010215\_005.DXD Analytical Method ID: File Name: Anions by IC (EPA 300.0 M) Dilution Factor: 300.0 Prep Method ID: Prep Batch Number: B010216003 SBP Analyst Initials: Report Basis: Dry Weight Basis <u>POL</u> <u>MDL</u> Rerun #: Flags Units CASNo Analyte Result 0.034 0.20 ND mg/kg Chloride

mg/kg 0.50

0.16

ND

FY01 REPLACEMENT FAMILY HOUSING
Case 3:05-cv-00263-JKS Document 17-12 Filed 10/31/2006

Detailed Analytical Report Workorder (SDG): B0102082

Analytica Environmental Laboratories, Inc.

Project: Client:

FTW230 Family Housing Improve U.S. Army Corps of Engineers

Client Project Number:

none

QC Recovery Report Work Order: B0102082

Prep Batch Nui Base Sample	Doso	B01021300	<u> </u>			•	
QC Sample		213004-MB 213004-LCS		Anal, Method:		9045B)	<del></del>
SampleAnalysis Date:	2/13/0	1 9:56:15AM		Sample Prep Date: Analysis Units:	pH	12:00:00AM	
QC Sample Analysis Date:	2/13/0			Matrix: QC DUPSample Analysis	Aqueou	s	è
Analyte	Samp. Result	Spike Res.	Spike Conc		LCI	. UCL RPD	Rec F
рН	ND	7.42	7.40	0 100		0 120	
Prep Batch Num	ıber:	B010216001				0 120	
Base Sample							
QC Sample		16001-MB 16001-LCS		Anal. Method:	Specific (	Conductance (SW 90	050)
-	D0102	10001-FC2		Sample Prep Date:	2/14/01 1	2:00:00AM	
ampleAnalysis Date:	2/15/01	9:00:03AM		Analysis Units:	umhos/cn	1	•
X Sample Analysis Date:	2/15/01			Matrix:	Soil		
\nalyte	Samp. Result	Spike Res.	Spike Conc	QC DUPSample Analysis D Recov	late: LCL	UCL RPD	Rec Fi
onductance							
ond a complete	ND	<b>ለ</b> ለያ	* 47				
	DM	448	447	100	80	120	
rep Batch Numl		3010216003	447	100	80	120	
rep Batch Numb	ber: ]	3010216003	447				
rep Batch Numl	ber:   		447	Anal. Method:	Anions by	IC (EPA 300.0 M)	
rep Batch Numt ase Sample C Sample	B01021 B01021	3010216003 6003-MB 6003-LCS	447	Anal. Method: Sample Prep Date:	Anions by 2/14/01 12	IC (EPA 300.0 M)	
rep Batch Numt ase Sample C Sample	B01021 B01021 B010210	3010216003 6003-MB 6003-LCS	447	Anal. Method: Sample Prep Date: Analysis Units:	Anions by	IC (EPA 300.0 M)	
rep Batch Numbase Sample C Sample mpleAnalysis Date: C Sample Analysis Date:	B01021 B01021 B010210 2/15/01	3010216003 6003-MB 6003-LCS	447	Anal. Method: Sample Prep Date:	Anions by 2/14/01 12 mg/kg Aqueous	IC (EPA 300.0 M)	
rep Batch Numt ase Sample C Sample	B01021 B01021 B010210	3010216003 6003-MB 6003-LCS	447 Spike Conc	Anal. Method: Sample Prep Date: Analysis Units: Matrix:	Anions by 2/14/01 12 mg/kg Aqueous	IC (EPA 300.0 M)	Rec FI
rep Batch Numbase Sample C Sample  mpleAnalysis Date: C Sample Analysis Date: malyte  oride	B01021 B01021 B010210 2/15/01 2/15/01 Samp.	3010216003 6003-MB 6003-LCS 11:44:54AM 12:01:14PM Spike	Spike	Anal. Method: Sample Prep Date: Analysis Units: Matrix: QC DUPSample Analysis Date	Anions by 2/14/01 12 mg/kg Aqueous e: LCL	IC (EPA 300.0 M) ::00:00AM UCL RPD	Rec FI
rep Batch Numbase Sample C Sample mpleAnalysis Date: C Sample Analysis Date: nalyte	B01021 B01021 2/15/01 2/15/01 Samp. Result	3010216003 6003-MB 6003-LCS 11:44:54AM 12:01:14PM Spike Res.	Spike Conc	Anal. Method: Sample Prep Date: Analysis Units: Matrix: QC DUPSample Analysis Dat Recov	Anions by 2/14/01 12 mg/kg Aqueous ie: LCL	IC (EPA 300.0 M) 2:00:00AM UCL RPD	Rec FI
rep Batch Numt ase Sample C Sample ImpleAnalysis Date: C Sample Analysis Date: Inallyte Oride Fate	B01021 B010216 2/15/01   2/15/01   Samp. Result	3010216003 6003-MB 6003-LCS 11:44:54AM 12:01:14PM Spike Res. 5.31	Spike Conc	Anal. Method: Sample Prep Date: Analysis Units: Matrix: QC DUPSample Analysis Dat Recov	Anions by 2/14/01 12 mg/kg Aqueous e: LCL	IC (EPA 300.0 M) ::00:00AM UCL RPD	Rec FJ
rep Batch Numberse Sample C Sample ImpleAnalysis Date: C Sample Analysis Date: Inalyte Inalyte Inalyte Inalyte Inalyte Inalyte Inalyte Inalyte Inalyte	B01021 B01021 2/15/01 2/15/01 Samp. Result ND ND	3010216003 6003-MB 6003-LCS 11:44:54AM 12:01:14PM Spike Res. 5.31 38.8	Spike Conc 5.00 37.5	Anal. Method: Sample Prep Date: Analysis Units: Matrix: QC DUPSample Analysis Dat Recov	Anions by 2/14/01 12 mg/kg Aqueous ie: LCL	IC (EPA 300.0 M) 2:00:00AM UCL RPD	Rec Fl
rep Batch Numberse Sample C Sample ImpleAnalysis Date: C Sample Analysis Date: Inalyte	B01021 B01021 2/15/01 2/15/01 Samp. Result ND ND	3010216003 6003-MB 6003-LCS 11:44:54AM 12:01:14PM Spike Res. 5.31 38.8 010220008	Spike Conc 5.00 37.5	Anal. Method: Sample Prep Date: Analysis Units: Matrix: QC DUPSample Analysis Dat Recov  106 103  Anal. Method:	Anions by 2/14/01 12 mg/kg Aqueous EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE	IC (EPA 300.0 M) 2:00:00AM  UCL RPD  120 120	Rec FI
rep Batch Numberse Sample C Sample ImpleAnalysis Date: C Sample Analysis Date: Inalyte Inalyte Inalyte Inalyte Inalyte Inalyte Inalyte Inalyte Inalyte	B01021 B01021 2/15/01 2/15/01 Samp. Result ND ND	3010216003 6003-MB 6003-LCS 11:44:54AM 12:01:14PM Spike Res. 5.31 38.8 010220008	Spike Conc 5.00 37.5	Anal. Method: Sample Prep Date: Analysis Units: Matrix: QC DUPSample Analysis Dat Recov  106 103  Anal. Method: Sample Prep Date:	Anions by 2/14/01 12 mg/kg Aqueous ELCL 80 80 Sulfide, Tota 2/14/01 12:0	IC (EPA 300.0 M) 2:00:00AM  UCL RPD  120 120	Rec Fl
rep Batch Numberse Sample C Sample ImpleAnalysis Date: C Sample Analysis Date: Inalyte	B01021 B01021 2/15/01 2/15/01 Samp. Result ND ND	3010216003 6003-MB 6003-LCS 11:44:54AM 12:01:14PM Spike Res. 5.31 38.8 010220008 008-MB	Spike Conc 5.00 37.5	Anal. Method: Sample Prep Date: Analysis Units: Matrix: QC DUPSample Analysis Dat Recov  106 103  Anal. Method:	Anions by 2/14/01 12 mg/kg Aqueous EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE	IC (EPA 300.0 M) 2:00:00AM  UCL RPD  120 120	Rec Fl

Y01 REPLACEMENT FAMILY HOUSING FTW230 Case 3:05-cv-00263-JKS Document 17-12 Filed 10/31/2006 Page 45 of 50

Detailed Analytical Repor

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0102082

Project:

FTW230 Family Housing Improve

Client:

U.S. Army Corps of Engineers

Client Project Number:

none

QC Recovery Report
Work Order: B0102082

Prep Batch Number: B010220008

Base Sample QC Sample SampleAnalysis Date: OC Sample Analysis Date:	B010220008-MB B010220008-LCS 2/15/01 12:03:49PM 2/15/01 12:03:49PM			Anal. Method: Sample Prep Date: Analysis Units: Matrix: OC DUPSample Analysis Date:	Sulfide, Total (EPA 376.1) 2/14/01 12:00:00AM mg/Kg Soil				
Analyte	Samp. Result	Spike Res.	Spike Conc	Recov Parkers		L UCL	RPD	 Rec Fl	
Sulfide, Total	ND	16.4	20.0	82	8	30 120	-		

#### FOOTNOTES TO QC REPORT

Note 1: Results are shown to three significant figures to avoid rounding errors in calculations.

Note 2: If the sample concentration is greater than 4 times the spike level, a recovery is not calculated, and the result should be used as a replicate. In such cases the spike is not as high as expected random measurement variability of the sample result itself.

Note 3: For sample duplicates, if the result is less than the PQL, the duplicate RPD is not applicable and is shown as 0. If the sample and duplicate results are not five times the PQL or greater, then the RPD is not expected to fall within the window shown and the comparson should be made on the basis of the absolute difference. Analytica uses the criterion that the absolute difference should be less than the PQL for water or less than 2XPQL for other matrices.

FY01 REPLACEMENT FAMILY HOUSING Case 3:05-cv-00263-JKS Document 17-12 Filed 10/31/2006 Page 46 of 50

**Detailed Analytical Report** 

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0102082

Project:

FTW230 Family Housing Improve

Client:

U.S. Army Corps of Engineers

Client Project Number:

none

### QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID:	2,110	Lab Project Number:	B0102082	
Test:	pH (SW 9045B)			Prep Date: 2/13/01
Lab Method Blank Id	: B010213004-MB			•
Prep Batch ID:	B010213004			·
Method:	pH (SW 9045B)			
		tch are associated with the fo	llowing samples, spi	kes, and duplicates:
<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>2</u>	<u>AnalysisDate</u>
B0102056-02A	Batch QC			2/13/01 9:56:15AM
B0102082-01A	AP3, SA-2 4.5-6.5			2/13/01 9:56:15AM
B0102082-02A	AP9, SA-2 4.5-6.5			2/13/01 9:56:15AM
B0102082-03A	AP13, SA-2 4.0-6.0			2/13/01 9:56:15AM
B0102082-04A	AP18, SA-2 4.5-6.5		*	2/13/01 9:56:15AM
B0102082-05A	AP21, SA-2 4.5-6.5	e transcription	and the second	2/13/01 9:56:15AM
B0102082-06A	AP26, SA-2 4.5-6.5			2/13/01 9:56:15AM
B010213004-LCS	LCS			2/13/01 9:56:15AM
B0102056-02A-DUP	DUP			2/13/01 9:56:15AM
B0102082-01A-DUP	DUP			2/13/01 9:56:15AM
Test:	Percent Moisture (A.	STM D2216)		Prep Date: 2/14/01
Lab Method Blank Id:	B010215002-MB			
Prep Batch ID:	B010215002			
Method:	Percent Moisture (A			Alberta Lander
	d sample preparation bat	ch are associated with the fol	lowing samples, spil	kes, and duplicates:
<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>		<u>AnalysisDate</u>
B0102082-01A	AP3, SA-2 4.5-6.5			2/15/01 8:15:14AM
B0102082-02A	AP9, SA-2 4.5-6.5			2/15/01 8:15:14AM
B0102082-03A	AP13, SA-2 4.0-6.0			2/15/01 8:15:14AM
B0102082-04A	AP18, SA-2 4.5-6.5			2/15/01 8:15:14AM
B0102082-05A	AP21, SA-2 4.5-6.5			2/15/01 8:15:14AM
B0102082-06A	AP26, SA-2 4.5-6.5			2/15/01 8:15:14AM
B0102082-06A-DUP	DUP			2/15/01 8:15:14AM

FY01 REPLACEMENT FAMILY HOUSING

CASE 3:05-CV-00263-JKS Document 17-12 Filed 10/31/2006 Page 47 of 50

Analytica Environmental Laboratories, Inc. Detailed Analytical Report

Workorder (SDG):

B0102082

Project:

FTW230 Family Housing Improve

Client:

U.S. Army Corps of Engineers

Client Project Number:

#### QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID:	2,110	Lab Project Number:	B0102082	
Test:	Specific Conducts	ance (SW 9050)		Prep Date: 2/14/01
Lab Method Blank Id	B010216001-MB	l .		
Prep Batch ID:	B010216001			
Method:	Specific Conducts	ance (SW 9050)		
This Method blank an	d sample preparation	batch are associated with the following	lowing samples, sp	ikes, and duplicates:
<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>		<u>AnalysisDate</u>
B0102082-01A	AP3, SA-2 4.5-6.5			2/15/01 9:00:03AM
B0102082-02A	AP9, SA-2 4.5-6.5			2/15/01 9:00:03AM
B0102082-03A	AP13, SA-2 4.0-6.0			2/15/01 9:00:03AM
B0102082-04A	AP18, SA-2 4.5-6.5			2/15/01 9:00:03AM
B0102082-05A	AP21, SA-2 4.5-6.5			2/15/01 9:00:03AM
B0102082-06A	AP26, SA-2 4.5-6.5			2/15/01 9:00:03AM
B010216001-LCS	LCS			2/15/01 9:00:03AM
B0102082-01A-DUP	DUP			2/15/01 9:00:03AM
_				

Prep Date: 2/14/01

Test:

Anions by IC (EPA 300.0 M)

Lab Method Blank Id: Prep Batch ID:

B010216003-MB B010216003

Method:

Anions by IC (EPA 300.0 M)

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

	· · · · · · · · · · · · · · · · · ·		•
SampleNum	ClientSampleName	<u>DataFile</u>	<u>AnalysisDate</u>
B010216003-LCS	LCS	010215_006.DXD	2/15/01 12:01:14PM
B0102082-01A	AP3, SA-2 4.5-6.5	010215_007.DXD	2/15/01 12:17:37PM
B0102082-01A-DUP	DUP	010215_008.DXD	2/15/01 12:33:59PM
B0102082-01A-MS	MS	010215_009.DXD	2/15/01 12:50:21PM
B0102082-02A	AP9, SA-2 4.5-6.5	010215_010.DXD	2/15/01 1:06:45PM
B0102082-03A	AP13, SA-2 4.0-6.0	010215_011.DXD	2/15/01 1:23:05PM
B0102082-04A	AP18, SA-2 4.5-6.5	010215_012.DXD	2/15/01 1:39:27PM
B0102082-05A	AP21, SA-2 4.5-6.5	010215_015.DXD	2/15/01 2:28:36PM
B0102082-06A	AP26, SA-2 4.5-6.5	010215_016.DXD	2/15/01 2:44:58PM

FY01 REPLACEMENT FAMILY HOUSING
Case 3:05-cv-00263-JKS Document 17-12 Filed 10/31/2006 Page 48 of 50

Detailed Analytical Report

Analytica Environmental Laboratories, Inc.

Workorder (SDG): B0102082

Project:

FTW230 Family Housing Improve

Client:

U.S. Army Corps of Engineers

Client Project Number:

none

#### QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID:	2,110	Lab Project Number:	B0102082	
Test:	Sulfide, Total (EP.	A.376.I)		Prep Date: 2/14/01
Lab Method Blank Id	B010220008-MB			•
Prep Batch ID:	B010220008			
Method:	Sulfide, Total (EPA	A 376.1)		
This Method blank an	d sample preparation b	atch are associated with the fol	llowing samples, spike	s, and duplicates:
<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>		<u>AnalysisDate</u>
B0102082-01A	AP3, SA-2 4.5-6.5			2/15/01 12:03:49PM
B0102082-02A	AP9, SA-2 4.5-6.5			2/15/01 12:03:49PM
B0102082-03A	AP13, SA-2 4.0-6.0			2/15/01 12:03:49PM
B0102082-04A	AP18, SA-2 4.5-6.5			2/15/01 12:03:49PM
B0102082-05A	AP21, SA-2 4.5-6.5			2/15/01 12:03:49PM
B0102082-06A	AP26, SA-2 4.5-6.5			2/15/01 12:03:49PM
B010220008-LCS	LCS			2/15/01 12:03:49PM
B0102082-01A-DUP	DUP			2/15/01 12:03:49PM
B0102082-01A-MS	MS			2/15/01 12:03:49PM

#### DATA FLAGS AND DEFINITIONS

#### Result Field:

ND = Not Detected at or above the Reporting Limit Shown

NA = Analyte not applicable (see Case Narrative for discussion)

#### Qualifier Fields:

LOW = Recovery is below Low Control Limit

HIGH = Recovery, RPD, or other parameter is above Upper Control Limit

E = Reported concentration is above the instrument calibration upper range

DIL = Sample required dilution to bring analytes within calibration range of the instrument.

At the dilution level required, the surrogate could not be quantified due to the resulting low surrogate concentration and/or coelution interference from the sample.

#### Organic Analysis Flags:

B = Analyte was detected in the laboratory method blank

J = Analyte was detected above 2 x MDL but below the Reporting Limit (Quant Limit)

#### Inorganic Analysis Flags:

B = Analyte was detected above the MDL or IDL but below the Reporting Limit

W = Post digestion spike did not meet criteria

S = Reported value determined by the Method of Standard Additions (MSA)

--End of Appendix 4--

## **United States Army Corps of Engineers**

Alaska District PO Box 898 Anchorage, AK 99506-0898

# **Final Chemical Data Report**

Family Housing Revitalization Fort Wainwright, Alaska January 2001



Prepared by **Engineering Services Branch Materials Section** March, 2001

T	ABI	LE OI	FCONTENTS	000000
1	E	xecutiv	ve Summary	2
2	O	bjectiv	e2	2
3	S	ite Bac	kground3	3
	3.1	Locati	ion	3
	3.2	Projec	et Background	3
	3.3	Site B	ackground	1
4	F	ield Ac	tivities	5
5	A	nalytic	al Results9	)
	5.1	Applie	cable Regulatory Levels	)
	5.2	Data (	Quality Evaluation9	)
	5.3	Soil S	ampling Results10	)
	5.	.3.1	BTEX/GRO10	)
	5.	.3.2	DRO/RRO	Ĺ
	5.	.3.3	Lead	2
	5	.3.4	Organochlorine Pesticides	2
6	C	Conclusi	ion13	3
7	R	eferenc	ces	1
A	ppen	dix A:	Chemist Field Observation Summary	
A	ppen	dix B:	Soil Boring Logs	
A	ppen	dix C:	Analytical Data Tables	
Α	ppen	dix D:	Chemical Data Quality Report	